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THE HEART IN THE PNEUMONIAS*

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According to the vitality and endurance of the heart and the circulatory system (including its vasomotor supply), may be reckoned the outcome of the given instance of pneumonia. Seldom, if ever, will the mechanical obstruction of the lungs prove a serious factor except in its influence on an already crippled cardiac mechanism. The less perfect the aeration of the blood in its passage through the pulmonary tissue, the more positive is the deprivation of the cardiac structure (muscle, ganglion and nerve) of its proper supply of nutriment.

The importance of this influence is emphasized by the reflection that the blood, under conditions of health, demands over 90 per cent. saturation with natural oxygen as the result of its passage through the lungs.[1] The more complete the stoppage of the blood- and lymph-streams in their course through the walls of the air-vesicles, the more real is the mechanical overload thrown on the pulmonic valve, and soon on a toxemic, tired, right ventricular wall. The more intense and virulent the toxemia, the more certain and extensive will be the damage to the entire cardiac mechanism, vascular, nervous and muscular. Yet there is often to be noted at the necropsy table a surprising discrepancy between the severity of the pneumonic process and of the toxemia, and the apparent damage sustained by the heart.

Many observers have commented on the fact that the heart in certain virulent, fatal pneumonias may appear to be affected in surprisingly mild degree. There may be little or no dilatation, no apparent incompetence of the valves, in short, seemingly no abnormality of a heart in a patient who has from the onset of the toxemia appeared to be doomed in spite of every effort to combat the disease. Such instances are practically always examples of intense, fulminant poisoning, in the so-called croupous or fibrinous type of the disease. The course is brief, the attack is largely on the nervous centers, and the heart, though always participating in the storm, seems to maintain a remarkable degree of power and equilibrium to the very end.

Not infrequently the microscope will reveal appreciable damage that escapes the naked eye. Clinically, as well as at the necropsy, however, the heart-muscle appears to be the last vital force to give way. Not so, in the many instances of bronchocatarrhal pneumonia, in which we practically never observe a sthenic patient or a heart which gives either clinical or post-mortem evidence of strength, stability or endurance.

One learns to associate the bronchocatarrhal type of pneumonia with a weak, dilated right heart, and on this basis very early to discriminate it from the croupous or fibrinous form of the disease. The temperature is irregular and low, the pulse running, rapid and often irregular, the patient asthenic far beyond the degree commensurate with the amount of pulmonary involvement—such is the clinical picture of the form of the disease in which the cardiac musculature and the vasomotor nervous system seem to sustain to such a preponderant degree the brunt of the attack. After such a pneumonia the post-mortem examination reveals almost invariably a flabby, characterless heart-muscle, of which incompetence is the main feature and dilatation the most meaningful expression. Routier[2] has recently reported a pneumonia in which the influence of the toxin on the fibers of the auriculoventricular conducting path resulted in a transient heart-block which disappeared spontaneously. By no means infrequently, however, the walls of both the left and right ventricles are thinned, and all of the valves, preeminently the pulmonic and tricuspid, are insufficient. I have one interesting specimen in my collection (Fig. 2) in which the conus arteriosus and the pulmonary artery both show marked permanent stretching and distention, the pulmonic valve appearing wide open between.

THE MICROSCOPIC CHANGES

I think it permissible to say that the heart shows post-mortem evidences of the toxemia in every fatal case of fibrinous, as well as of bronchocatarrhal pneumonia, that reaches the microscope. In the latter type of the disease the changes are more likely also to be macroscopic. I think it likely that every heart that weathers the pneumonic storm sustains similar lesions, of milder degree perhaps, yet from which it probably never fully recovers.

During the past year I have taken great interest in studying microscopic sections of the cardiac musculature from fatal cases of pneumonia in the wards of the Philadelphia General Hospital. In not a single instance was there a lack of evidence that a toxic influence had been actively at work. Usually the process appeared in the form of an acute diffuse myocarditis, with cloudy swelling of the cells, often with fragmentation of the muscle-fibers. In the great majority of cases the striations had nearly disappeared from the fibers, over wide areas, if not generally throughout the heart. Not infrequently could be found here and there areas showing extensive round-cell infiltration,

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1. Cooke and Varcroft: Jour. Physiol., 1914, xlvii, 35.

2. Routier: Arch. d. mal. du coeur, May, 1914.

mainly of the interstitial substance between the fibers. In quite a number of instances, as exemplified in Figure 3, there was wide-spread hemorrhagic infiltration. The nuclei of the muscle-cells were proliferated, were often swollen, and here and there vacuoles appeared in their place. Many of the muscle-fibers gave the appearance of being atrophied. In no case except in old persons, or in those afflicted with organic cardiac

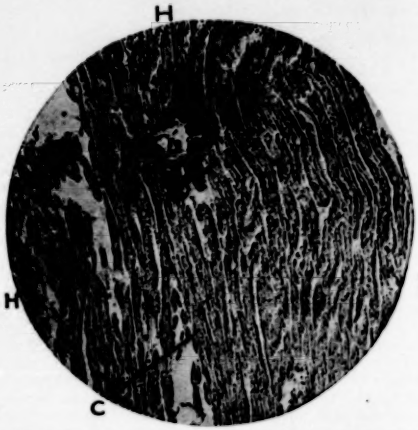

Fig. 1.—The heart-muscle in a case of croupous pneumonia, showing the rich capillary blood-supply to each fiber, the capillaries lying within (or in a groove in) the latter (C); interfibrillar hemorrhage (H), and complete loss of striae.

disease, was fatty degeneration of the heart-muscle observed.

Macroscopically as well as microscopically, there was evidence in every heart examined of some degree of pericarditis. I observed not one instance in over a year's time of fresh endocarditis, except such as was superimposed on an old lesion.

THE BLOOD-PRESSURE

Before using the blood-pressure as an evidence of either cardiac competence or insufficiency in the pneumonias, it is incumbent on us to show that in a sthenic pneumonia the customary or normal pressure is due to an overacting or at least a capable heart; while in the low-grade or asthenic pneumonias the low pressures are due to an incompetent cardiac mechanism rather than to vasomotor failure. The personal equation will of necessity enter largely into the verdict rendered by various investigators of this question. During the past three years I have studied more or less thoroughly over seven hundred cases of pneumonia on the wards of the Philadelphia General Hospital. Both with the finger on the radial, carotid and apical pulses, and with the sphygmomanometer, I have measured the blood-pressure in very many of these cases. I have a few records of the systolic pressure made in certain sthenic fibrinous pneumonia cases reading as high as 170 and 180 mm. of mercury. Far more often the readings followed approximately the normal line (from 120 to 140 mm.). I refer, of course, only to the active and sthenic stages of the toxemia. I have yet to see in a patient with pneumonia of the bronchocatarrhal type (except in childhood) an instance of high or even of normal systolic blood-pressure. Even in instances associated with symptoms of nephritis, or with arteriosclerosis of high grade, there has persisted a low systolic pressure, indicating insufficiency of cardiac vigor and driving power.

The diastolic pressure, elicited by the auscultatory method, furnishes a fair index of the vasomotor tone. While this also is usually lowered in pneumonias of the asthenic type, it falls by no means in a measure commensurate or parallel with the cardiac power. Thus the systolic pressure in cases of bronchocatarrhal pneumonia during the stage of active toxemia has averaged not far above 100 mm., while the diastolic pressure has seldom registered below 80 mm., yielding an average pulse-pressure of 20.

This fact, together with such manifest indications of cardiac insufficiency as systolic jugular pulsation, arhythmia, small rapid pulse, enlargement of the area of cardiac dulness to the right, and often a series of valvular murmurs that can only be interpreted as indicative of muscular (relative) insufficiencies, apparently allow us but one possible conclusion, namely, that in the great number of low-grade pneumonias the heart-muscle must be ever an object of care and concern. Gibson[3] has called attention to a possible prognostic relation of the systolic cardiac pressure to the pulse-rate. Lauder Brunton has made a similar study of the diastolic pressure. In my own experience the systolic pressure has furnished a very uncertain prognostic index, for the reasons already stated. The majority of the low-grade pneumonias have presented a systolic pressure almost constantly lower than the pulse-rate, and yet the vast majority of these patients, when properly treated, have recovered.

THE INFLUENCE OF TREATMENT

Considerable evidence may be gained as to the actual condition of the cardiac mechanism through studying the results of treatment. It is a current belief and

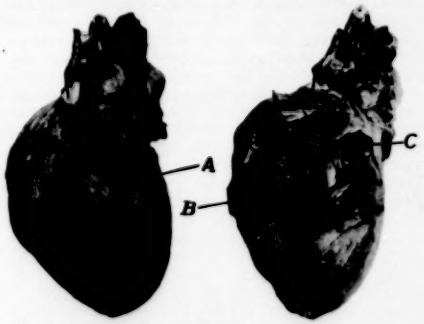

Fig. 2.—Pneumonia heart, showing (A) dilated conus arteriosus and right ventricle from without, and insufficient tricuspid (B) and pulmonic (C) valves.

teaching, employed perhaps more freely than is justified by circumstances, that the pneumonic patient dies not of his pulmonary involvement, and not of his cardiac embarrassment, but owing to paralysis of the vasomotor system. In acute fibrinous sthenic pneumonia there would seem in certain instances to be at

3. Gibson: Edinburgh Med. Jour., 1908, lxv, 22.

least some reason to support this view. In the bronchocatarrhal type of the disease there is exceedingly little. No better illustration could be given of the truth of this assertion than the fact that the high or normal blood-pressure in the fibrinous type appears to be due to overaction of a sthenic heart; while conversely, in the bronchocatarrhal form the asthenia and the almost invariably low blood-pressure appear to be

Fig. 3.—Heart-muscle from the left ventricle in a case of bronchocatarrhal pneumonia. Extensive degeneration of the fibers, with widespread hemorrhages (*H*). Striae completely lost.

due not nearly so much to loss of vasomotor tone as to actual cardiac dilatation and disability. Instances that admit of reestablishment of the cardiac tone do well. The most telling advantage seems to come from the systematic and thorough emptying of the intestinal tract, in many cases the manufactory of the toxic products. When the bowel has been deliberately rendered and kept clean the heart has, in my experience, seemed to have its best opportunity for rehabilitation. The moment the bowel has been neglected the heart has apparently suffered in a measure that is not to be explained on the basis of mere mechanical embarrassment. Such remedies as nux vomica, quinin, camphor, digitalis and oxygen in Nature's own form of warm, clean air, may serve as cardiac tonics and, on occasion, as indispensable temporary crutches. Under their influence the blood-pressure rises and may be maintained at a more favorable level.

On the other hand, such drugs as epinephrin and pituitary extract I consider dangerous in the presence of a weak heart. While they are certain to afford a momentary rise in the blood-pressure as the result of their influence on the vasomotor system, I have more than once seen evidence of their mischievous, and possibly lethal, action on a weak heart, through the imposition on its crippled musculature of an additional load in the form of a tense peripheral circulation. Nature knows better than we when to elevate and when to lower the intravascular tension.

In a sthenic fibrinous pneumonia practically any treatment may be employed. We start and finish with the knowledge that in the vast majority of instances, otherwise healthy, non-alcoholic men and women should recover. Not so with the bronchocatarrhal, asthenic pneumonia patient, who must be supported actively through the disease because his vital forces, especially his cardiac mechanism, are all below par. Many a case of mistreated pneumonia takes on a totally different appearance when placed under conditions that favor and nourish instead of depleting the tone and strength of the heart. Perhaps the best illustration may be had in the misuse of cold air on an asthenic patient suffering from pneumonic toxemia. I have placed many such shivering, cyanotic subjects in warm, clean air and witnessed the immediate reestablishment of forces that were fast beginning to wane. Uppermost and most striking of all appeared to be the influence on the heart, which craved oxygen as its natural stimulant and tonic, but needed it in the form of warm, as opposed to cold, clean air.

PREEXISTING CARDIAC DISEASE

A final bit of evidence as to the importance of a thoroughly healthy cardiac mechanism — including musculature, valves, endocardium, ganglia and nerves — is observed in the high mortality of cases that enter on a pneumonic toxemia with preexisting cardiac disease. We have all seen instance after instance of a patient making a bold fight to weather the storm, and experiencing sudden cardiac collapse, either in midstream or on the brink of convalescence. Only recently I witnessed an acute pneumonia in a young man of 22 years, an alcoholic, with myocardial degeneration and high-grade mitral stenosis and insufficiency, all sclerotic and probably syphilitic in origin. He went to bed in the beginning of an intense pneumococcus infec-

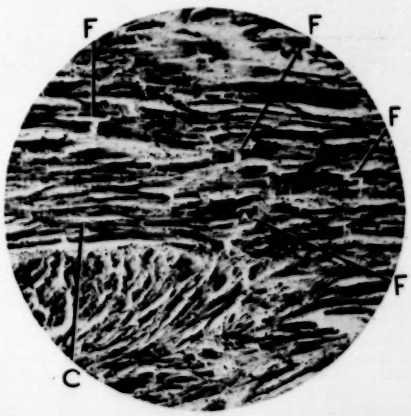

Fig. 4.—Heart-muscle in a case of bronchocatarrhal pneumonia. Striae show here and there, but have mostly disappeared. Considerable fragmentation of the fibers (*F*). The capillary blood-supply is beautifully distinct (*C*).

tion with a heart widely dilated, an irregular pulse and edematous extremities. Within two days he showed a steady, remarkable cardiac gain. The jugular pulses became almost undiscernible, the apical pulse regained its regularity, the edema entirely disappeared from the extremities. With these signs of cardiac rehabilita-

tion, the whole aspect of the pneumonia (croupous or fibrinous, as shown at the necropsy) altered. The patient was no longer cyanotic, the breathing became more free, and it appeared almost as though even this desperate case might win out against the acute disease. Suddenly and coincidently with an apparent crisis, all the signs of cardiac distress reappeared, and in a brief period evident cardiac, not pulmonary, death supervened. The heart had reached its recuperative limit, and could draw no further on a reserve force, because it had no further stock in store. In the same manner a tobacco- or alcohol-weakened cardiac muscle may decide the issue between life and death in an otherwise favorable pneumonia.

CONCLUSION

Without attempting to minimize the influence of the vasomotor system in the causation of a high mortality in pneumonia, it would seem as though we ought not to be satisfied, on the basis of either clinical or laboratory experience, to regard the heart in any other way than as the factor of prime importance in the safety or danger of the great majority of asthenic pneumonia patients. More and more does the prevalent pneumonia seem to be tending away from the well-recognized, frank sthenic type, to the low-grade, asthenic, bronchocatarrhal forms. The more certainly this is true, the more inevitable will be the necessity of safeguarding the heart from start to finish, not so much by the use of drugs as by their avoidance (especially cardiodepressants like nitroglycerin and alcohol), not so largely by treatment as by the studious prevention of an overdose of solicitous care. Hygiene of the intestinal tract, sane feeding, the intelligent use of an abundance of clean air of the right temperature, and the insuring of ample periodic freedom from the doctor, nurse and family will go farther than any others toward supporting the organ whose staunch cooperation is essential to the happy outcome of the case.

1827 Spruce Street.

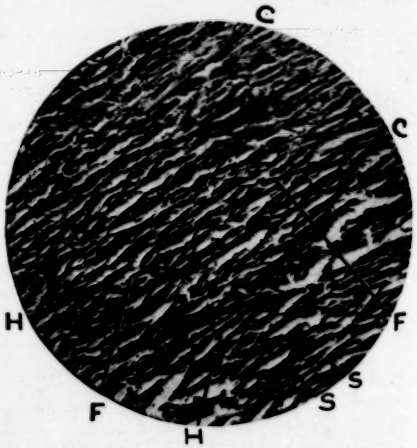

Fig. 5.—Heart-muscle in a case of bronchocatarrhal pneumonia, showing considerable atrophy of the fibers, scattered hemorrhages (*H*) and extensive fragmentation (*F*). Striae are seen here and there (*S*). Capillary blood-supply is exquisite (*C*).

ABSTRACT OF DISCUSSION

DR. JAMES M. ANDERS, Philadelphia: I feel convinced that Dr. Willson is right in stating that pneumonia has been assuming an irregular bronchopneumonic type in recent years to a greater degree than formerly. This fact may be attributable to the more constant and general prevalence of various forms of influenza. The view that death in uncomplicated cases of pneumonia is due to the specific effect of the toxemia on the heart is widely accepted. Perhaps it would be more nearly correct, in the present state of our knowledge, to say that death is caused by the general rather than the local effect of the toxemia. As pointed out by Dr. Willson, the whole vasomotor system is profoundly involved in many cases. The heart is frequently dilated, especially the right side, and filled with firm coagula. It has long been held that if the more usual cardiac complications, such as acute endocarditis, pericarditis and fatty degeneration in protracted cases, be excluded, the changes presented by the myocardium are conspicuous by their absence. The results of the microscopic studies by Dr. Willson, therefore, are not a little surprising, but will constitute a distinct advance in our knowledge of pathologic changes found in the heart in pneumococcic infections, especially if confirmed by the findings of other competent observers. The frequency and seriousness of the disease in question make it desirable that further histologic investigations of the subject be undertaken. I quite agree that cold or fresh air in the treatment of pneumonia is one of the best, if not the best measure at our command, but it should not be indiscriminately employed. It has not a specific influence, but does increase resistance to the toxemia. Again, it should not be employed in cases in which active kidney lesions preexist.

DR. WILLIAM S. THAYER, Baltimore: Does Dr. Willson believe that the type of pneumonia has really changed from a sthenic to an irregular asthenic type? On what does he base his opinion? In over twenty-five years' observation of pneumonia in various regions I have not been able to detect any essential differences in the clinical character of the disease beyond, of course, the common variations in different epidemics. I am quite familiar with this assertion with regard not only to pneumonia but to other acute febrile diseases, especially typhoid fever. I rather think that the old-fashioned "typical case" is essentially a picture in the mind of the observer based on text-book descriptions—an impression so strong that in the course of years it becomes interpreted as actual experience; and that the common impression that such a disease as pneumonia is changing its type is largely based on the circumstance that in practice pneumonia shows frequent variations from this picture. I am not aware that such change in the clinical manifestations of the disease has occurred.

DR. ROBERT N. WILLSON, Philadelphia: In answer to Dr. Thayer's question, I have two grounds for the assertion that the prevalent type of pneumonia is gradually changing from that of the old-fashioned book type of fibrinous or croupous pneumonia to the low-grade or bronchocatarrhal form. First, my own personal experience in a series of several hundred cases, both in hospital and private work, leads directly to such a conclusion. This experience covers and includes considerable necropsy and microscopic work in confirmation of the diagnoses. My second basis of argument is the result of not a few conferences held with men in various localities over the country, who agree with me in my conviction as the result of their experience and study. Dr. Anders' statement, made a few moments ago, in discussing my paper, furnishes a case directly in point. I had not previously heard his position in the matter. I shall welcome similar studies of the heart in the pneumonias as confirmatory of my own. In every instance of pneumonia widespread damage to the cardiac musculature will be found. When this fact is recognized I think we will begin again to regard the heart as the organ and force mainly to be safeguarded and conserved, and to lay a little less stress on the vasomotor factors in grave cases of pneumonia.

THE USE OF SMALL DEEP SKIN GRAFTS

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The object of this paper is to call attention again to the value of very small grafts, especially to those which contain more of the true skin than the superficial grafts advocated by Reverdin. I have called these grafts "small deep grafts."

The hastening of the healing of granulating wounds by the use of small detached bits of skin was first demonstrated by J.-L. Reverdin.[1] His report to the Société Impériale de Chirurgie, Dec. 8, 1869, caused universal interest.

He showed a patient on whom he had practiced "epidermic grafting," and described the grafts as consisting of the epidermis only. He says, "I raised with the point of a lancet two little flaps of epidermis from the right arm, taking care not to cut the dermis."

Grafts obtained by Reverdin's method are usually thought of as pure epidermic grafts, and in his articles Reverdin always spoke of them as *greffe épidermique;* but in his exhaustive paper on the subject,[2] published in 1872, he says in part, "The title 'epidermic grafts' is not perfectly correct, as the transplanted bit is composed of the whole epidermis and a very little of the dermis."

Reverdin also said that if the epidermis alone could be transplanted, the same result would be obtained as when a part of the dermis was included. This, of course, is true as far as the epithelium is concerned, but it has been my experience in a large number of cases that the grafts which are somewhat deeper and contain more of the true skin give a more stable healing, and the final result is more like the normal skin in character than when the thinner grafts are used (Fig. 1).

It is interesting, when we consider that Reverdin developed his method of grafting before the introduction of antisepsis and asepsis in surgery, and that his is probably the only type of graft which could have given satisfactory results under such conditions.

The favorable results obtained by other surgeons in England, America, Germany and France, following the use of Reverdin's method, undoubtedly stimulated further investigation along this line.

The tiny grafts of Reverdin were gradually superseded by much larger grafts of the same thickness, advocated by Ollier[3] in 1872, and later by Thiersch[4] in 1886. After a few years the value of the Reverdin method seemed to have escaped the attention of most surgeons, and one might be about a surgical clinic for years and never see this type of graft employed.[5]

USE OF SKIN GRAFTS

As there is little difference, except in thickness, between the "small deep grafts" and Reverdin grafts, the following methods of preparation, etc., will be found applicable for either type.

Surface on Which Grafts May Be Placed.—The grafts may be placed on fresh wounds, but are usually applied to granulating surfaces. The success of small grafts depends to a large extent on the condition of the granulating wound, and it is most important that the granulations be clean, firm, rose pink in color, and not exuberant. Time is saved in the end by careful attention to this point. It is of advantage to place

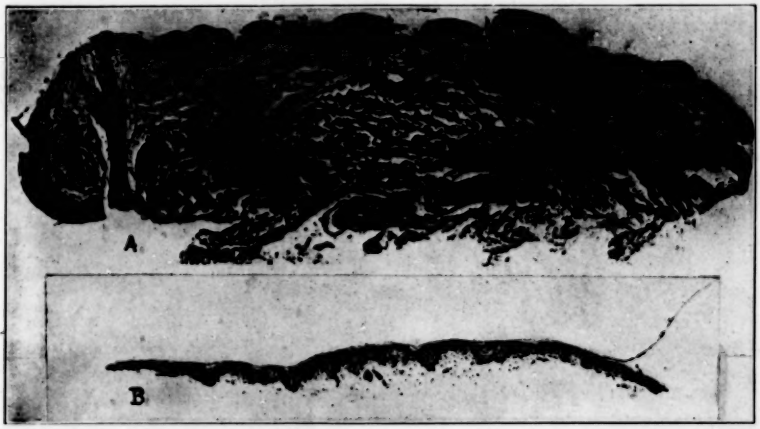

Fig. 1.—Photomicrographs of the same magnification showing the comparative thickness of a small deep graft and a Reverdin graft; *A*, a small deep graft cut to include a considerable thickness of the true skin; in the section the edges of the graft are curled inward; *B*, a Reverdin graft cut to include as little of the dermis as possible; there is a thin layer of the dermis throughout, which is thickest in the center.

1. Reverdin, J.-L.: Greffe épidermique, Bull. de la Soc. impériale de chir. de Paris, Dec. 8 and 15, 1869, pp. 493, 511.
2. Reverdin, J.-L.: De la greffe épidermique, Arch. gén. de méd., 1872, pp. 276, 555, 703.
3. Ollier: Bull. de L'Acad. de méd., 1872, i, 243.
4. Thiersch: Verhandl. d. deutsch. Ges. f. Chir., Berlin, 1886, xvii.
5. In a study of the first 550 cases grafted in Dr. Halsted's clinic at the Johns Hopkins Hospital, between 1889 and 1909, I found that Reverdin grafts were used in only two cases, and then in conjunction with Thiersch grafts. Since that time, however, the small grafts have been frequently used (Davis: Johns Hopkins Hosp. Rep., xvi). In 1909, Ehrenfried and Cotton, in an excellent and timely paper, again brought to the attention of American surgeons the value of Reverdin's method. In this paper there is also a complete historical review of the subject (Ehrenfried and Cotton: Boston Med. and Surg. Jour., Dec. 23, 1909, p. 911).

these grafts on a granulating surface, as there is no pain in the preparation of the surface; no danger of stirring up infection, and no loss of blood, which is an important point in cases already much depleted.

I will not consider at this time the various methods of bringing a granulating surface into healthy condition.

Method of Preparing Healthy Granulations to Receive Grafts.—On the day preceding the operation, all secretions and crusts are removed. The granulations are painted with tincture of iodin and dressed

Fig. 2.—*A*, the straight intestinal needle, held in an artery clamp, with its point engaged in the skin. The skin is raised up in a little cone. *B*, the scalpel cutting through the base of the cone. *C*, placing the graft on a granulating surface. A large opened-out safety-pin is very useful in detaching the grafts from the needle. In this photograph none of the grafts have as yet been pressed down on the wound, and the edges are still curled under.

either with balsam of Peru and castor oil, 1:3, or with moist boric or salt gauze. The dressings are removed at the time of operation, and the wound washed carefully, without causing bleeding, with sponges dipped in warm salt solution. The surface is dried thoroughly and a pad of dry gauze placed over the wound; it is pressed down firmly on the granulations, and removed only when the operator is ready to apply the grafts. It is most important that the surface to be grafted should be perfectly dry, as the grafts adhere much better to a dry surface, and are less liable to be subsequently displaced.

The Source of Grafts and Area from Which They Are Obtained.—Autografts are almost uniformly successful when placed on a granulating surface which is in proper condition.

Isografts are also successful in many instances, but there are wounds which have come under my observation on which no isograft would take, even after

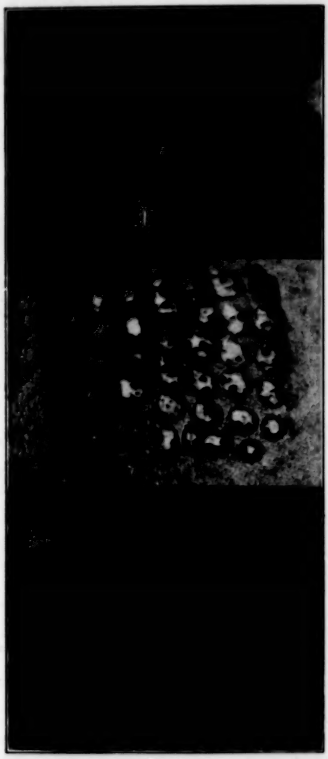

Fig. 3.—*A*, the actual size of a small deep graft with its edges curled under. When this graft is pressed down on a wound the edges flatten out, thus making the graft about one-third larger. *B*, the punched out defects left by cutting the grafts. Some are filling up with blood in spite of the epinephrin in the local anesthetic. Note the depth of the pits and the rim of undisturbed skin between them. *C*, a close view of an area grafted with small deep grafts. The grafts themselves are of normal-appearing skin, which is soft and flexible. Between the grafts is scar tissue, which is slightly depressed. The scaly appearance of this area is due to desquamation of epithelium. Photograph was taken six months after grafting.

repeated trials from many donors. Autografts on the same wounds healed promptly.

The grafts may be obtained from almost any portion of the skin. It is considerably easier to cut them from a region such as the front of the thigh (where

the skin is quite taut), than where it is lax, as for instance on the abdomen.

The region from which the skin is taken has little, if any, effect on the success or failure of the grafts.

A large number of these grafts can be obtained from a comparatively small area, thus making it possible to use small grafts on extensive wounds without any severe tax on an ill patient.[6]

Preparation of Area from Which the Grafts are Taken.—A satisfactory method of cleaning the skin before removing the grafts is to shave, and then wash thoroughly with green soap and water. Rinse with sterile water and sponge with ether, followed by alcohol; finally rinse with normal salt solution and dry. It is better to use no antiseptic in the preparation of this area, although very satisfactory results follow the use of iodin technic.

Anesthesia.—As these grafts are obtained with little pain and are usually applied to undisturbed granulations, general anesthesia is unnecessary, unless the patient is a young child, or in a highly nervous condition. It is as a rule desirable to inject 1 per cent. quinin and urea hydrochlorid solution, or 0.5 per cent. novocain, with a small amount of epinephrin, and take the grafts from the anesthetized area. The infiltration seems to have no hindering effect on the healing of the grafts.

TECHNIC

The simplest way to obtain these grafts is to pick up a bit of the epidermis with a straight intestinal needle held in an artery clamp[7] (Fig. 2). It is raised so that a little cone is formed and the base of the cone is cut through by depressing the blade of the knife.[8] (The thinner Reverdin grafts may be obtained by cutting off the tip of the cone.) The graft, still on the needle, is transferred to the wound, with raw surface downward. The grafts are placed in rows, a space of not more than 5 mm. being left between the grafts.[9] When two rows are in place, a strip of dry sterile rubber protective about 1.5 cm. wide is applied over them, so that the lower edge of the protective just covers the lower row of grafts. Then the protective is pressed down over the grafts firmly with a gauze pledget, and the edges of the grafts will uncurl and spread out evenly on the wound. The next row of grafts is placed close to the edge of the protective, and after two or three rows are applied, they are covered with a second strip of protective, which overlaps the first piece about one-half its width. The protective is pressed down firmly, and the procedure is continued in this manner until the whole wound, or the part selected, is covered.[10] The ends of the protective strips which extend beyond the wound edges may be fastened securely to the normal skin by means of a few drops of chloroform.[11] Moist salt gauze over the protective strips secured by a bandage is a satisfactory dressing. The part should also be immobilized as far as possible.

The area from which the grafts are taken may be dressed with boric ointment spread on a sheet of rubber protective, which is snugly strapped over the wound, or with silver-foil and dry gauze.

The grafts are either round or irregularly oval. They vary between 2 and 4 mm. in diameter (Fig. 3), and should seldom be larger than 4 mm. They are thickest in the center and taper off toward the edges. With a sharp knife the size, contour and depth can be judged quite accurately.

The wounds left by the removal of the grafts have the appearance of small pits punched in the skin, there being a rim of untouched epithelium between the pits. Fat may be seen in the bottom of some of the pits, which shows that a considerable depth of the skin is used.

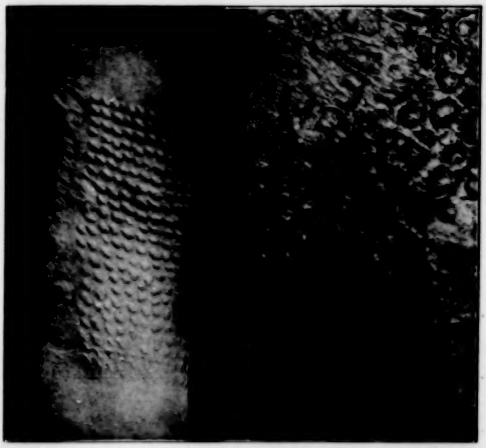

Fig. 4.—*A*, the development of keloid on the thigh in the wounds from which small deep grafts were cut. All of these grafts were cut at one operation. There was no keloid formation around the grafts. Photograph was taken one year later. *B*, keloid formation around small deep grafts. The grafts, which are soft and in good condition, can be seen at the bottom of little pits. The development of the keloid around the grafts followed a perfectly flat and apparently normal healing. There was no keloid growth in the scars from which the grafts were cut. Photograph was taken nine months after grafting.

There is more bleeding following the removal of these small deep grafts than when the Reverdin grafts are cut, and the resulting scars are also somewhat more pronounced.

Sometimes when the grafts are small, and the skin blood-stained, it is difficult to determine which is the raw surface. This difficulty is obviated when the grafts are obtained from a negro or when iodin technic is employed.

When a large number of these grafts have to be applied the process is very tedious, but this may be mitigated to a certain extent by having two men cutting the grafts, while one man places them, or vice versa.

6. In a number of instances I have applied several hundred of these grafts at a single operation.

7. Agnew, D. H. (Med. and Surg. Rep., 1874, xxxi, 424), first suggested the use of the needle to raise the bit of skin to be cut in obtaining Reverdin grafts.

8. The use of forceps and scissors in obtaining small grafts is not desirable, as the skin is thereby traumatized unnecessarily.

9. The grafts will spread over a considerably larger area, but I believe that more stable healing is produced when the grafts are placed quite close together than when they are planted with greater intervals between.

10. The overlapping strips of protective allow the escape of any secretions from the wound into the overlying dressings.

11. C. A. Porter of Boston uses crape lisse and collodion to hold grafts in place on small wounds.

POSTOPERATIVE TREATMENT

The patient should be kept in bed for a longer or shorter period, depending on the size and location of the grafted area. The part grafted should be immobilized and protected from injury.

The dressings should be removed on the second or third day, and any wound secretions carefully mopped up, or washed off with a gentle irrigation of normal salt solution.

It is possible, even as soon as this, to tell whether or not the grafts have been successful, and in many instances a narrow ring of new epithelial growth can be seen surrounding each graft.

Some bland ointment on old linen is then applied, and if after a day or two the epithelial growth from the grafts is not as vigorous as desired, it is well to alternate the bland ointment with scarlet red, 8 per cent., in petrolatum or zinc ointment, or to use some other epithelial stimulant.

The surface from which the grafts are taken should be dressed in three or four days if protective is used, and the area dusted with a dry powder. If silver-foil is used it should not be disturbed for ten days, after which time all dressings may be removed.

As soon as the new epithelium has filled the gaps between the grafts and joined the epithelium from the wound edges, the grafted area may be dressed with a dry powder, such as zinc stearate, and exposed to the air.

I have not found the open treatment of these grafts just after application to be satisfactory.

The grafted area should be protected from injury for several weeks. Gentle massage is advisable after about three weeks, and should be continued until the grafted area is as freely movable as the normal skin around it.

There is a marked desquamation of the grafted surface when it dries out, especially between the grafts, which is evidently due to epithelial overproduction, but this scaliness can easily be controlled by the application of olive oil or oil of theobroma (butter of cacao).

Fig. 5.—*A*, ulcer, seven months' duration, following a streptococcus infection. *B*, one week after grafting with small deep grafts. Note the close proximity of the grafts to each other. Many of them have grown together and also have joined the stimulated skin edges. Shrinkage in the size of the wound is noticeable. *C*, the same wound two weeks after grafting, entirely healed. *D*, the grafted area two years and three months after operation. The individual grafts can be plainly seen and are sharply differentiated from the surrounding scar tissue.

UNTOWARD POSSIBILITIES

There are certain untoward possibilities which must be considered. On account of the simplicity of the operative procedure we are accustomed to regard the use of small grafts as attended with no danger and with but few bad results. Aside from contraction, which may occur, we must consider the danger of carrying infection from the granulating surface to the wounds from which the grafts are cut. It is a difficult matter to convey a graft on a needle, or any other instrument, to a granulating wound without occasionally touching the granulations with the instru-

ment. In order to avoid this chance of contamination it is best either to use a fresh needle for each graft, or to have several needles, so that one can be "flamed" while the other is in use.[12]

Another disagreeable occurrence is the formation of keloid (Fig. 4). Occasionally a massive keloid growth will form in the grafted area, and the grafts themselves can be seen at the bottom of little depressions in the keloid. This keloid growth would probably occur in these wounds whether they were grafted or not. Again, keloid may develop in the scars of the wounds from which the grafts are taken. We know that in certain persons there is a tendency to the development of keloid following almost any wound. This is of course especially true among negroes. It has been my experience that keloid develops in white persons, either in the wound itself or in the areas from which the grafts are taken, much more frequently in burns than in large wounds from other causes. Burns caused by acids seem especially prone to be followed by keloid.

COMMENTS

The age of the patient has apparently little effect on the healing of small grafts. The general health should be carefully looked after and when necessary a vigorous building-up treatment inaugurated. Small grafts will often succeed on granulating surfaces under conditions in which no other type of graft could live. There is almost invariably a marked stimulation of the epithelium of the wound edges following the application of these grafts, even though the grafts be unsuccessful.

The shrinkage in the size of the wound after grafting with small grafts is in some cases quite remarkable. Contraction may occur under a grafted area, but it is not nearly so likely as when grafting is not done. If the grafts are placed close together, contraction may be to a large extent prevented. Healing is very much expedited by the use of these grafts, and resulting cicatrix is solid and resistant.

Small deep grafts are apparently not replaced by scar tissue, as they can be demonstrated as definite areas of normal-appearing skin surrounded by scar tissue even after several years (Fig. 5).

A wound grafted with these small grafts, placed at intervals, has a dotted appearance, and the cosmetic result is not so satisfactory as when either large Ollier-Thiersch, or whole thickness grafts, are used. For this reason it is better not to use them on the face, unless especially indicated. However, if the grafts are placed close together, so as to touch each other, the appearance of the grafted area is very much improved.

A brownish pigment sometimes appears in the grafts themselves, as well as in the cicatrix between them. The scars left by the removal of these grafts is after a time scarcely noticeable, except in those instances in which pigmentation occurs.

The sensation of an area grafted with small deep grafts gradually comes in from the periphery, and not from the underlying tissues.

12. The importance of this point was impressed on me by the following incident: A very resistant ulcer of the groin of long standing, the etiology of which could not be definitely determined, was grafted with small grafts. The wounds from which the grafts were taken on the thigh became infected, and when I was called to see the patient a week afterward, an ulcer similar to that in the groin had developed. This ulcer also resisted every method of treatment used, and it was finally necessary to excise the entire area with a liberal margin. The defect, which was 11 cm. in diameter, and down to the deep fascia, was immediately grafted with a Thiersch graft and healed promptly.

The procedure is by all odds the simplest method of grafting. It requires little preliminary preparation after the granulations are in condition, and unless the area to be grafted is large, the grafting can be done in the patient's room. Enough autografts can be obtained from a small area to cover a large wound without causing any appreciable injury to a patient already in a serious condition.

Several patients have come under my care whose lives have undoubtedly been saved by the successful use of these small grafts.[13]

The difference in the ultimate result between small superficial grafts and small deep grafts placed close together is almost as marked as the difference in results between Ollier-Thiersch grafts and whole thickness grafts.

INTRINSIC CANCER OF THE LARYNX

COMPLETE EXCISION APPARENTLY EFFECTED BY ENDOLARYNGEAL OPERATION

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The treatment of intrinsic cancer of the larynx by laryngofissure is remarkably satisfactory. It is doubtful if the results of operation for cancer in any other part of the body can surpass those which I have already reported.[1] Since giving full particulars and showing cases before the Medical Society of London in 1912, I have continued to obtain the same results; that is, no patient has been lost by operation, and 80 per cent. have remained free from recurrence. This freedom from recurrence dates back in some cases for ten years.

The same proportion of lasting cures was obtained by Semon, who did much to popularize laryngofissure in these cases, and similar records were secured by Butlin, who revived the operation after it had been quite discredited both in this country and abroad. Possibly it is because these excellent results were first obtained in England that we, in this country, have come to look askance at any other route for removing an endolaryngeal cancer except that obtained by splitting the larynx. We are even a little skeptical in accepting the records which claim permanent cures by operating through the mouth; yet reports of such cases have been published by several eminent authorities.[2]

Among my recent cases it has been my good fortune to obtain, in a curious way, the definite proof that an intrinsic cancer of the larynx can be completely removed *per vias naturales*. But I hasten to add that the completeness of removal was unintentional and that I do not for a single moment suggest that excision

13. I have in mind an illustrative case. A child, aged 12, was severely burned over the pelvis, thighs and legs. She came under my care nearly a year after the accident, during which period she had been repeatedly grafted without success. Her condition was desperate. She was delirious, extremely emaciated and generally depleted by the pain, and by the long-standing suppurating wounds. As a last resort the wounds were grafted with small deep, autografts, which were successful, and within a few days the change in her condition for the better was astonishing. A prompt recovery followed. No other type of autograft could have been successful in this case, on account of the condition of the granulations.

1. Thomson, St. Clair: Brit. Med. Jour., Feb. 17, 1912, p. 355.
2. Fraenkel, B.: Deutsch. med. Wchnschr., xv, 1; Arch. f. Laryngol., 1897, vi, 361. Arslan: Arch. Ital. di Otol., 1901, xii, Part 2; Ann. des mal. de l'oreille, 1904, xxx, 130. This gives an analysis of recorded cases. In two personal cases, confirmed by the microscope, the patients remained well after four years and twenty months, respectively. Finder: Jour. Laryngol., 1910, xxv, 602.

of a cancer of a vocal cord should ever be confided to the laryngeal forceps. On the contrary, this very case which I am about to relate, gives the strongest proof of the desirability and hopefulness of treating intrinsic laryngeal cancer by opening the larynx from the outside. It was the first case of endolaryngeal cancer which I have handled in a woman; all my other patients were males.

Mrs. A. P., aged 53, had been hoarse for eight months when she was sent to me at King's College Hospital, Oct. 12, 1912, by Dr. Shaw of Great Yarmouth. The right vocal cord from the anterior commissure back to the vocal process was replaced by a reddish, cauliflower growth (Fig. 1). This

Fig. 1.—Intrinsic cancer of the larynx. Epithelioma of the right vocal cord.

somewhat interfered with the movement of the cord, but its intrinsic mobility was not impaired. There were no enlarged glands and the case was evidently a very suitable one for operation by laryngofissure. The Wassermann reaction was negative and the chest was healthy.

As the growth did not infiltrate the cord to any great extent (as shown by the persistence of mobility), and as it projected well above the surface, I decided to remove a portion so as to confirm the diagnosis by microscopic examination. With the aid of cocain, and using a large-sized duck-billed forceps of Morell Mackenzie, with the indirect method, I seized as large a piece of the cord as possible, and, finding it very tough, I removed it by avulsion. The toughness and naked-eyed appearance were confirmatory of my diagnosis of malignant disease, and the following report on the removed tissue was kindly furnished by Dr. d'Este Emery:

"The material is an irregular mass about 9 by 5 mm. It is divided into two parts, of which one consists of papillomatous and epitheliomatous tissue, with a very small amount of fibrous stroma which shows evidence of subacute inflammatory changes. The large portion consists of a firm fibrous basis. On one edge there are some mucous glands. On the other two unattached edges, there is a margin of epitheliomatous tissue which in places is inflamed and ulcerated.

"The epithelioma in this section is a typical one but shows little keratinization. There are a few imperfectly formed cell-nests, and some so-called 'cancer parasites.'"

Nov. 28, 1912, anesthesia was induced by Dr. Silk by intravenous infusion of ether and hedonal, administered through the internal malleolar vein. The usual laryngofissure operation was carried out; no Hahn's tube was used. The remains of the right cord and the ventricular band were dissected up with their perichondrium from the inner surface of the thyroid cartilage and removed *en masse* together with the vocal process of the arytenoid cartilage. The tracheotomy-tube was removed before the patient left the table. She would have been allowed up the next day, but she was exceedingly drowsy from the hedonal and could hardly be roused. Within forty-eight hours of the operation, however, she was sitting out of bed and eating solid food. She returned to the country a fortnight after operation.[3]

The tissue removed by laryngofissure was submitted to Dr. Emery, who reported on it as follows:

"The specimen is of an irregular shape, the longest dimensions being 19 by 10 mm. The base consists of striped muscle which is inflamed and edematous; some mucous glands occur in the lowest portion. Above this there is a layer of organizing granulation-tissue in various stages, but there is no epithelial covering. Mucous glands, normal or slightly inflamed, are scattered throughout the section, and at one end there is a triangular piece of cartilage about 2.5 mm. long.

"There is no sign of epithelioma or other malignant disease in any other part of the section."

This report brings us to the instructive conclusions which may be drawn from this case. To be brief, I will simply state them in order.

1. Cancer of the vocal cords, is, in early stages, a very slowly progressive and strictly limited process. (In this case hoarseness dated from eight months, the cord was still quite mobile, and the disease was still superficial.) Alteration of voice is the principal and may be the only symptom. Persistent hoarseness in any patient calls for a definite diagnosis.

2. Diagnosis is based chiefly on inspection of the larynx. Only in certain cases in which the growth is a superficial and not an infiltrating one can it be confirmed by microscopic examination.

3. The growth, even when it occupies almost the entire length of a vocal cord, can sometimes be completely removed by endolaryngeal operation in early cases. But this completeness can be ascertained only when, by laryngofissure, the remains of the vocal cord and adjoining soft parts have been removed and submitted to the pathologist.

4. Laryngofissure is, therefore, the operation of choice in all cases of endolaryngeal cancer.

5. The operation offers the very best prospects, first, because the disease remains for some time superficial and limited, and secondly, because laryngofissure cannot be considered a dangerous operation.

6. Statistical results show a lasting cure in 80 per cent. of cases, and if all patients presented themselves and cases were diagnosed early there is no reason why the results should not be even more satisfactory.

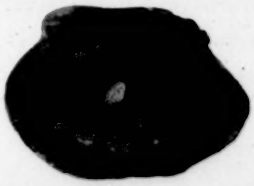

Fig. 2.—Intrinsic cancer of the larynx after operation by laryngofissure, showing a large (innocent) granuloma.

My patient is in good health, with a useful voice, and has had no recurrence at the present date, that is, one and a half years after operation.[4]

I have already confirmed the opinion originally enunciated by Semon that if recurrence does not take place during the first year after operation there is every prospect of permanent cure.

ADDENDA

In addition to the six conclusions tabulated above this case suggests three other interesting points.

3. The patient was shown before the Clinical Section, Royal Society of Medicine, Feb. 14, 1913.

4. The patient was shown before the Clinical Congress of American Surgeons, in London, July 28, 1914.

1. *Regrowth.*—Toward the end of January, 1913, that is, two months after operation, the patient began to show symptoms of what many would have taken to be a recurrence of the growth (Fig. 2). But I had no anxiety myself, partly on account of the foregoing negative report from the pathologist, but chiefly from experience with previous cases in which a regrowth during the first two months nearly always proved to be a simple granuloma. In this case the fresh neoplasm was removed entire through the mouth with the same Mackenzie forceps, and by indirect laryngoscopy, and was found to consist of simple granulation-tissue, showing no epithelioma or sign of malignant disease in any part of the section.

The moral of this is, that a regrowth in early days after a thyrotomy for cancer is not necessarily malignant.

2. *Value of Indirect Laryngoscopy.*—The case shows that a considerable growth, indeed, practically an entire vocal cord, can be removed with one bite of the forceps used by the indirect, or, as some already call it, the "old method" of laryngoscopy. As I have practiced Killian's direct laryngoscopy for eleven years, I feel equally skilled with the two methods, and each method has its own well-marked indications. I very much doubt if the most expert endoscopist could have removed as large a growth as I did in this case, and certainly it could not have been done more quickly or less disagreeably. The indirect method allows of the forceps being sloped to the opposite side of the body, so that any growth on a cord can be more cleanly and completely seized than is possible with the limited action of cutting forceps working in a circumscribed, circular tube. The importance of removing as large and intact a portion of growth as is possible is of the highest value when it is desirable to submit a suspected neoplasm to the microscope. It will be a loss to laryngoscopy, and to our patients, if the rising generation of throat surgeons neglect to acquire the gentler art of indirect laryngoscopy and limit themselves to the easier but rougher technic of direct examination.

3. *Anesthesia.*—Laryngofissure can be well carried out under local anesthesia. I have employed it in one successful case, but I doubt if many of our sensitive patients in this country would submit to the moral ordeal. In the foregoing case the operation lasted eighty-five minutes. Anesthesia was induced by a mixture of 1 ounce of ether and 20 grains of hedonal to a pint of normal saline solution, the object of the hedonal being to diminish as far as possible the total amount of fluid passed into the circulation. Two pints and 6 ounces of this mixture were used, corresponding to 2 ounces 2½ drams of ether and 46 grains of hedonal, including a certain amount of wastage. Probably 2 ounces of ether and 40 grains of hedonal were infused through the internal malleolar vein. As administered by Dr. J. F. W. Silk, the resulting anesthesia was, from the operator's point of view, perfectly ideal. The field of operation was quite clear of the anesthetist and his paraphernalia, and the patient's sleep was tranquil and even.

But the profound sleep in which she continued to be plunged next day gave me some anxiety. For twenty-four hours it was difficult to arouse her, and I thought what a serious condition might have arisen if, peradventure, she had inspired any blood during the operation and we had wished her to cough up the resulting bronchial or pulmonary catarrh.

I would suggest that in future cases the hedonal be reduced to a minimum, if it cannot be dispensed with.

In another case I had there was some thrombosis of the lower part of the internal saphena vein, and this kept the patient in bed when he ought to have been up and about.

Besides, I am not quite sure whether it is wise to flood the circulation with over 2 pints of liquid, and it is difficult to keep within the limit unless some such drug as hedonal be employed with the corresponding tendency to prolonged and profound after-sleep.

Anyhow, the method of anesthesia by intravenous infusion of ether has not yet established itself in my opinion, for these cases, and it still requires consideration. In my more recent cases I have returned with satisfaction to the use of chloroform employed in the usual way.

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SARCOID OF BOECK*

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Kaposi[1] first grouped mycosis fungoides, lymphodermia perniciosa, sarcomatosis cutis and the real sarcomas of the skin in a class which he called sarcoid. Spiegler[2] and Max Joseph[3] did some early work on the subject. Fendt[4] classed as sarcoid, "tumors of benign prognosis, having only a limited growth, frequently healing with arsenic, composed of groups of round cells, which are circumscribed, divided by septa and encapsulated."

Boeck[5] in 1899 reported as multiple benign sarcoid a new disease of characteristic clinical and histologic appearance. In later articles Boeck[6] reported a series of cases and added a new type of the disease, the diffuse infiltrating type.

The work of Boeck caused many cases to be reported in the European literature but in America the only cases are those of Gottheil,[7] Pollitzer[8] and Sutton.[9] G. H. Fox and Wile[10] reported an atypical case and Howard Fox[11] reported one composed histologically of round cells, so that it is not a sarcoid of Boeck. Darier and Roussy[12] in 1904 described a subcutaneous sarcoid closely resembling Boeck's sarcoid. Darier[13] in 1910 made an extensive study of the entire group of sarcoids. He divided the group into four types, as follows:

1. Multiple benign sarcoid of Boeck.
2. Subcutaneous sarcoid of Darier-Roussy.
3. Erythema induratum-like sarcoid of the extremities.

* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Kaposi, M.: Lehrbuch der Hautkrankheiten, Ed. 5, p. 909.
2. Spiegler: Arch. f. Dermat. u. Syph., 1894, xxvii, 163.
3. Joseph, M.: Arch. f. Dermat. u. Syph., 1898, xlvi, 177.
4. Fendt: Arch. f. Dermat. u. Syph., 1900, liii, 213.
5. Boeck, C.: Jour. Cutan. Dis., 1899, xvii, 543.
6. Boeck, C.: Ergänzungsband zum Arch. f. Dermat. u. Syph., 1900, p. 153; Arch. f. Dermat. u. Syph., 1905, lxxiii, Nos. 1-3, p. 71.
7. Gottheil, W.: Jour. Cutan. Dis., 1902, xx, 400.
8. Pollitzer, S.: Jour. Cutan. Dis., 1908, xxvi, 15.
9. Sutton, R. L.: Dermat. Wchnschr., 1914, lviii, 537.
10. Fox, G. H., and Wile, Udo: Jour. Cutan. Dis., 1911, xxix, 375.
11. Fox, Howard: Jour. Cutan. Dis., 1914, xxxii, 124.
12. Darier, J., and Roussy, G.: Ann. de dermat. et. de syph., 1904, v, 144.
13. Darier, J.: Monatschr. f. prakt. Dermat., 1910, l, 419.

4. Spiegler-Fendt type. Non-tuberculous, composed of round cells. Resembles neoplastic lymphoderma.

Boeck's sarcoid or miliary lupoid, as he later called it, has three forms: (1) large nodular; (2) small nodular or papular; (3) diffuse infiltrating. The lesions may vary in number from one only, as in the cases of Kreibich and Kraus[14] and Urban,[15] or run into many thousands, as in the case of Hallopeau and Eck.[16] It is located on the face, back, shoulders and extensor surfaces of the arms, but can occur on the scalp and lower extremities. Boeck asserted that the soles of the feet were not involved. Wolfheim[17] reported a case where the soles were involved.

Fig. 1.—Sarcoid of Boeck.

It may begin suddenly with a diffuse edematous reddening and after from eight to fourteen days disappear and leave one or more circumscribed infiltrated areas. More often it begins as a little round nodule, deep in the cutis and as it approaches the epidermis lifts it up. The nodules grow very slowly, come out in crops and last months and even years. They feel larger than they look, according to Unna.[18] They are red at first, later red-violet, then yellowish and finally brownish. They feel hard, and often, on pressure with glass, show minute yellow foci. This led to the name "miliary lupoid." This is seen at the time of retrogression. As retrogression occurs the nodules become depressed in the center and a fine network of telangiectatic vessels run over the edge; sometimes a fine scale forms. The nodule or papule may completely disappear and leave a pigmented spot or an atrophic scar with telangiectatic vessels over it. It never softens or ulcerates. The mucous membrane is sometimes affected. The lymphatic glands may or may not be enlarged. The general condition is not influenced by the disease, and the urine and blood are normal. It occurs more often in women than in men (Fox and Wile[19]). It may occur, according to Boeck, from the thirteenth to the forty-fifth year, but cases have been reported earlier (Sutton[9] and later Mazza[19]). Rather typical in the disease is the involution of the nodules under prolonged arsenical medication.

The histologic picture is characteristic. "One look in the microscope suffices to make a diagnosis," according to Darier.[13] Sections show sharply circumscribed, deep-seated nodules, separated by connective-tissue septa which seem to have been pushed aside by the growing tumor. The cells are epithelioid with pale-staining nuclei. At the edges are seen a few lymphocytes, giant-cells and rarely giant-cells of the true Langhans type.

The elastic tissue is absent in the nodules but present in the septa. There are no leukocytes present, as a rule, and there is never any evidence of caseation. Blood-vessels can be seen in the nodules.

The Darier-Roussy type of subcutaneous sarcoid is very rare. Three cases were recorded by Darier in 1910. They consist of round or oval subcutaneous nodules from the size of a hazelnut to a walnut. They are few and are located on the back of the trunk. There is no tendency to ulceration and no influence on the general system. Histologically they are situated in the subcutis, composed of epithelioid-cells and new connective-tissue cells and lymphocytes; numerous giant-cells are seen and a few plasma-cells, mast-cells and leukocytes. It differs from Boeck's in its appearance, its size, its subcutaneous location, and also looks more tuberculous. It is less sharply defined and more infiltrating.

Fig. 2.—Enlargement showing inidividual lesions.

The third group of Darier, the sarcoid of the extremities resembling erythema induratum, is more frequent, and occurs mostly in women. It consists of nodules with circumscribed thickening and hardening of the

14. Kreibich and Kraus: Arch. f. Dermat. u. Syph., 1908, xcii, 173.
15. Urban, O.: Arch. f. Dermat. u. Syph., 1910, ci, 175.
16. Hallopeau and Eck: Ann. de dermat. et de syph., 1902, iii, 905.
17. Wolfheim, K.: Ikonographia Dermat. Fasc., vi, 255.
18. Unna, P., Jr.: Dermat. Wchnschr., 1912, lv, 1203.
19. Mazza, G.: Arch. f. Dermat. u. Syph., 1908, xci, 57.

cutis and subcutis. They are painless, seldom soften and ulcerate and are generally located on the extensor surfaces of the extremities. They are from the size of a pea to that of a hazelnut.

Pelagatti,[20] Thibierge and Bord[21] and Darier himself reported cases of this type. Many authors look on this as erythema induratum on account of the occasional ulceration, positive tuberculin reaction and the few cases of Carle,[22] Thibierge and Ravaut,[23] Colcott Fox[24] and Schidachi,[25] in which tuberculosis was demonstrated in inoculated animals. Philippson[26] demonstrated tubercle bacilli in the sections.

The fourth type, or sarcoid of Spiegler-Fendt, shows no relationship to tuberculosis, but is composed of round cells and is probably related to the neoplastic lymphoderma. This type shows nodules in the cutis, the skin is rose, lilac or dark red in color. It is located on the body, is chronic in course and has no tendency to ulceration. It is usually affected by arsenical medication. Histologically the lesions are composed of

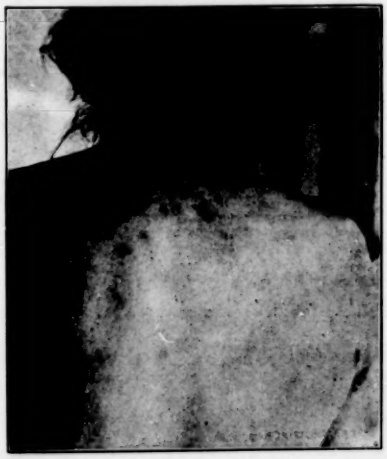


Fig. 3.—Back showing depressed areas.

round cells more or less circumscribed and sometimes encapsulated. Epithelioid and giant-cells are either absent or very scanty. Probably many cases of sarcoma of the skin reported as cured belong to this group.

In regard to Darier's classification, Nobl[27] asserts that the subcutaneous sarcoid and erythema induratum are identical. Volk[28] in a recent article says that Type 4 can be dropped, as this class belongs to the neoplastic lymphoderma. Type 3, Volk, in agreement with others, classes as erythema induratum. This leaves only Types 1 and 2, and he asserts that the cases reported by Darier-Roussy and one of his own are the only cases reported so far of Type 2, and questions if this type really does not belong to erythema induratum. Volk reports a case of subcutaneous sarcoid in which he obtained the tubercle bacillus in a guinea-pig and produced tuberculous iritis in rabbits' eyes.

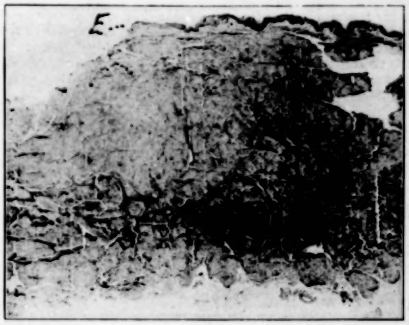


Fig. 4.—Section of tumor under very low magnification; *E*, epidermis.

REPORT OF CASE

The following case of Boeck's sarcoid came under my observation early in 1914. The patient was sent into the University Hospital by Dr. A. W. Shaw of Buhl, Minn., being referred to me by Dr. F. R. Wright.

Patient.—Mrs. H. G., Swedish, aged 53; large and well nourished. Weight 169. Eruption began three years ago, first being manifest in the scalp, then the face was affected and finally the back and arms.

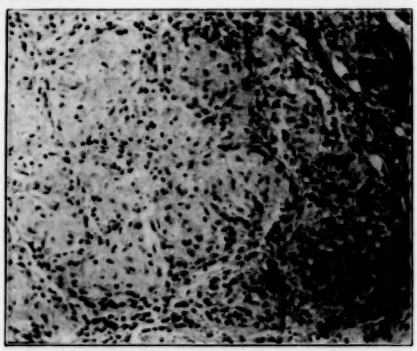
Macroscopic Examination.—The scalp shows no new lesions but eight areas of irregular shape and size, somewhat depressed and slightly scaly. The face and forehead show

Fig. 5.—Portion of lower part of tumor under higher magnification.

about thirty lesions, some new, some old. They begin as a small, round, freely movable tumor deep in the skin and eventually involve the epidermis, lifting it up in a nodule, red at first, later red-violet, and as they get older more of a brownish-yellow. Finally the nodule becomes depressed in the center and shows a small white scale. Over the edges of many of the old lesions is a fine network of telangiectatic vessels. These old lesions are some small singular ones of the size of a grain of wheat and others seem to be formed of

20. Pelagatti: Gior. ital. d. mal. ven., 1907, xlviii, 425.
21. Thibierge and Bord: Ann. de. dermat. et de syph., 1907, viii, 113.
22. Carle: Lyon méd., 1901, xcvi, 358.
23. Thibierge and Ravaut: Ann. de dermat. et de syph., 1899, x, 513.
24. Fox, Colcott: Brit. Jour. Dermat., 1893, v, 225.
25. Schidachi: Wein. klin. Wchnschr., 1913, xxvi, 1425; referred to by Volk (Note 28).
26. Philippson: Gior. ital. d. mal. ven., 1898, xxxiii, 61.
27. Nobl, G.: Wien. med. Wchnschr., 1913, lxiii, 2341.
28. Volk, R.: Wien. klin. Wchnschr., 1913, xxvi, 1425.

a group of these small lesions and are therefore polycyclic in shape. At the nasolabial fold are a few younger lesions lighter in color and not depressed. There is no evidence of any pus or caseation in any of these lesions. On pressure with a glass it is possible to make out minute round yellowish foci. On the back there are about fifty lesions, most of them evidently having undergone resolution. The new ones start as round hard nodules very deep in the subcutaneous fat. As they grow older they flatten out and lift up the epidermis in a hard, firm, elevated, flat brownish-red lesion. Evidently an atrophy finally takes place and the lesions heal, leaving a soft depressed bluish area, covered with dilated capillaries. There are no scales present on the back. The breast and upper arms show a few isolated lesions, one or two of which show a fine



Figs. 6 and 7.—Still higher magnification of tumor.

scale. The mucous membrane of the nose and mouth is not involved. The glands are not enlarged.

Two subcutaneous injections of tuberculin gave no local or general reaction. Wassermann reaction was negative. Blood and urine normal. A small section was cut from a lesion on the face for microscopic study. Two large pieces were cut from the back to obtain more material for histologic study and animal and cultural experiments.

Microscopic Examination.—Histologically the tumors on the face and back were identical with the exception that the one from the back showed more giant-cells. The epidermis was normal. The papillary layer was unchanged except where the tumor encroached on it in some sections; there it was flattened a little. The tumor was situated deep in the dermis and consisted of a number of round or rounded areas separated by connective-tissue septa. The cells of the tumor were epithelioid with pale-staining nuclei. A few lymphocytes were seen at the edges. In the tumor from the back were giant-cells of the true Langhans type. Elastic tissue was absent from the tumor but present in the septa. No tubercle bacilli were found in any of the sections and no evidence of caseation or necrosis was seen.

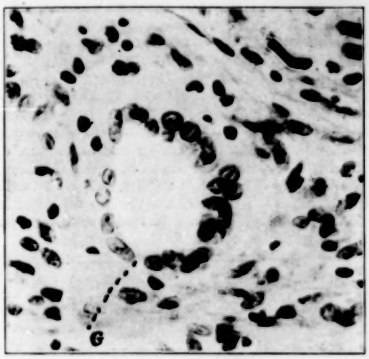


Fig. 8.—Langhans type of giant-cell.

Animal Experiments.—Two rabbits and four guinea-pigs were inoculated intraperitoneally with pieces of tissue from the tumor. One guinea-pig which died of some intercurrent disease ten weeks after inoculation showed at post-mortem several small firm nodules in the omentum. No parasitic diseases were found to account for these nodules. Examined microscopically the structure strongly suggests healed tubercles. While these lesions cannot be taken as positive proof of healed tuberculosis they are best explained by this interpretation. They are about the type of lesions one would expect to see as the result of infection with tubercle bacilli of

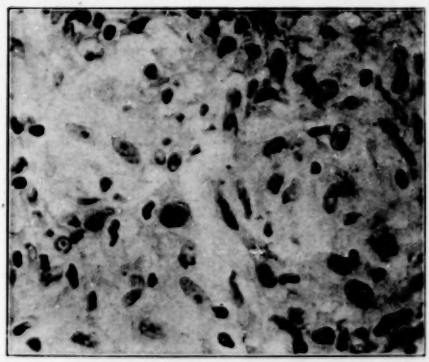


Fig. 9.—Epithelioid cells highly magnified.

low virulence. All the ordinary media were inoculated with material from the tumor on the back. No growth was obtained either aerobically or anaerobically.

ETIOLOGY

The etiology of Boeck's sarcoid is of interest. Boeck himself thought it to be an infectious bacillary dis-

ease which is identical or closely allied to tuberculosis. Darier classed it as a tuberculid, Winkler[29] analyzed seventeen cases and found that six patients had sure signs of tuberculosis, seven had swollen glands and four no signs of tuberculosis at all. Darier, Kreibich and Kraus, Opificius[30] and Stümpke[31] had cases in which a local reaction was produced by tuberculin. Kren and Weidenfeld[32] inoculated twelve guinea-pigs and had no successful results and none of the guinea-pigs reacted to tuberculin given one or two months later. Morawetz[33] in 1909 reported a case of Boeck's sarcoid in which Boeck personally confirmed the diagnosis. There was no local or general reaction to tuberculin. A guinea-pig inoculated, however, was dead in ten days from tuberculosis and tubercle bacilli were recovered. Kyrle[34] in 1910 reported a case of Boeck's sarcoid in which animal inoculation was successful in one guinea-pig after ten months. Kyrle[35] even goes so far as to suggest the name of tuberculosis cutis typus Boeck, considering all cases of Boeck's sarcoid as due to tubercle bacilli. Pohlmann[36] inclines to the belief in the tuberculous nature of the disease. Oppenheim[37] in 1913 reported three cases of tumors deep in the skin. These tumors appeared after hypodermic injections and gave a histologic picture that was identical with sarcoid of Boeck. He thinks that not all cases of sarcoid are due to tuberculosis but that some other organism may occasionally cause it. Urban[15] agrees with Kreibich and Kraus[14] in considering that there are two varieties of the disease, one related to tuberculosis, the other group having nothing whatever to do with it. Kren[38] in a recent communication considers Boeck's sarcoid a tuberculosis of low virulence, but says that as yet this view has not been generally accepted in the literature. With regard to the scant

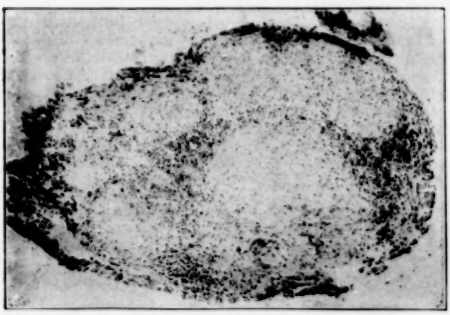


Fig. 10.—Tumor produced in omentum of guinea-pig.

results of so many investigators on inoculation of guinea-pigs, it is true that a bacterium of low virulence often may not take in a guinea-pig and at times may take and later become fibrosed as apparently happened in my case.

29. Winkler, M.: Arch. f. Dermat. u. Syph., 1905, lxxvii, 3.
30. Opificius: Arch. f. Dermat. u. Syph., 1907, lxxxv, 239.
31. Stümpke, G.: Dermat. Ztschr., 1913, xx, 199.
32. Kren and Weidenfeld: Arch. f. Dermat. u. Syph., 1909, xcix, 79.
33. Morawetz: Arch. f. Dermat. u. Syph., 1910, cii, 121; referred to by Pohlmann (Note 36).
34. Kyrle: Arch. f. Dermat. u. Syph., 1910, c, 375.
35. Kyrle: Dermat. Wchnschr., 1913, lvii, 1445.
36. Pohlmann, A.: Arch. f. Dermat. u. Syph., 1910, cii, 109.
37. Oppenheim, M.: Dermat. Wchnschr., 1913, lvii, 1289.
38. Kren, Otto: Personal communication.

DIAGNOSIS AND PROGNOSIS

A clinical diagnosis must always be confirmed by the microscope. Clinically, leprosy, lupus vulgaris, lupus erythematosis, leukemia cutis, syphilis, erythema induratum and lupus pernio must all be considered.

The prognosis as regards life is good. Recurrences are common, however.

Therapeutically arsenic has given good results in many cases. My patient has, according to a recent letter, improved very much while taking Fowler's solution. Darier has recommended calomel and tuberculin.

The histologic work in this case was done by Dr. E. T. Bell, assistant professor of pathology in the University of Minnesota, the animal experiments were done by Dr. W. P. Larson, assistant professor of bacteriology of the University of Minnesota, to both of whom I am indebted for kindly aid and advice.

625 Syndicate Building.

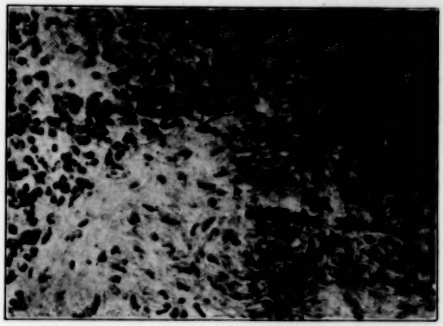


Fig. 11.—Structure of this tumor showing mostly epithelioid cells.

ABSTRACT OF DISCUSSION

DR. HOWARD FOX, New York: I have had an opportunity to study a case of this affection reported by my father, Dr. George Henry Fox, in conjunction with Dr. Udo J. Wile, as well as one of my own published last year in the *Journal of Cutaneous Diseases*. In my case it was practically impossible to arrive at a positive diagnosis, as the patient, a young lady, refused to have a biopsy performed. The nearest approach to a diagnosis, after the patient had been seen by many of the best dermatologists in New York and Philadelphia was that it was an atypical case of lupus vulgaris. As a result she was treated with a Finsen-Reyn lamp, operated by a skilled graduate of the Finsen Institute, for a total of about a hundred and fifty hours. After this treatment the eruption on one side of the face almost entirely disappeared, leaving, however, a marked depression. The other side of the face proved entirely refractory to the Finsen therapy and was later treated by Dr. Fred Wise with carbon dioxid snow. This was followed by a complete disappearance of the lesions with a perfect cosmetic result. As a result of this experience I would certainly urge the use of carbon dioxid snow for the treatment of other cases of sarcoid.

DR. F. W. CREGOR, Indianapolis: I report a case which I regarded as one of sarcoma cutis, basing this diagnosis on the picture of a similar case presented by Ehrmann in Vienna three years ago. My patient was a bachelor, 46 years old, who at the age of 11 first noticed dark-red, oval elevations, varying in size from a split pea to a large hazel-nut. The color of the lesions ranged from dark-red to bluish-black, with sharply defined lines of demarcation, and the

elevations were at all times very perceptible, and always rising gradually. The patient consulted many physicians, none of whom ever ventured a diagnosis. The family history was negative for any skin disease, and there was no personal history of syphilis or tuberculosis, nor did a careful examination reveal any clinical evidence of either of these diseases. The patient said he had long ago learned that by making an incision into these elevations with his pen-knife, they would rapidly disappear, leaving a smooth, pigmented spot. The privilege of a biopsy has not been granted, but it is promised in the near future, when I hope to make some further studies in connection with this interesting case.

DR. S. E. SWEITZER, Minneapolis: I wish to lay particular emphasis on the etiology of this condition. The conflicting views that have been held are gradually clearing up, and there are types of sycosoid that are probably a form of tuberculosis of the skin, as my case shows. The case mentioned by Dr. Howard Fox may have had an entirely different etiology.

NEURASTHENIA AND TUBERCULOSIS (CONCEALED)*

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MINNEAPOLIS

Neurasthenia is defined as a condition of exhaustion in the general nervous system. No clear-cut symptom type has ever been described which could identify it and separate it from other diseases, the pathology and etiology of which are known. No specific cause or definite lesion in the brain, spinal cord, peripheral nerves or other organs or tissues of the body have been discovered which would serve to establish a definite pathology for it and thus distinguish it from other diseases the pathology of which is known.

Resting on no etiologic, pathologic or distinctly clinical foundation, the question may pertinently be asked—why does neurasthenia still retain its place as a clinical entity and why do clinicians persist in making the diagnosis of neurasthenia?

Because after the cases of recognizable organic disease simulating neurasthenia have been excluded from the group, a good number remain in which clinicians can detect no tuberculosis, no syphilis, no gastric ulcer, no nephritis, no organic heart-disease, no exophthalmic goiter or other organic disease.

That the limitations of our diagnostic resources may be responsible for this is quite probable because the Wassermann reaction has helped to exclude from the group of so-called neurasthenias many cases of concealed lues; the Roentgen ray has subtracted a number by revealing the presence of unrecognized gastric ulcers, and the more recent methods of cardiac examination and diagnosis have taken out a not inconsiderable number of cases of organic heart-disease.

If it can be shown that many of the so-called pure neurasthenias harbor a tuberculous infection so concealed as to have hitherto escaped recognition, the death knell of neurasthenia as a clinical entity must be sounded.

The close relationship between neurasthenia (so-called) and tuberculosis has long been recognized and commented on.

Stiller[1] devotes a whole chapter to the subject.

Lawrason Brown has emphasized the fact that in no disease is the neurasthenic state so frequently encountered as in tuberculosis.

It is not my intention to discuss the relationship between neurasthenia and clinically demonstrable tuberculosis, nor do I intend to consider the cases of clinically recognizable tuberculosis exhibiting neurasthenic symptoms.

The purpose of this study is to present evidence to prove that:

1. Many cases of clinically pure neurasthenia harbor tuberculous lesions so concealed as to escape detection by the examination methods usually employed.

2. No organic disease except tuberculosis can be discovered in these cases.

3. The diagnosis of tuberculosis rather than neurasthenia should be made in these cases.

4. The nervous symptoms exhibited by these patients should be interpreted as a new clinical symptom type for tuberculosis produced by the toxin of the tubercle bacillus.

In proof of this contention I here present the clinical reports of fifteen cases.

The diagnosis of neurasthenia was primarily made in all. The varied subjective symptoms, the long time over which these symptoms had been complained of, the absence of detectable organic lesions, the build and nervous construction of these individuals seemed to justify this conclusion.

The diagnosis of tuberculosis could not have been made in these cases on the usual symptoms and physical signs of this disease because these were absent.

These patients had no cough (with two or three exceptions), little or no fever, no night sweats, no hemophthisis, no rapid loss in weight, no sputum—hence no tubercle bacilli in sputum.

The presence of a tuberculous lesion in these cases was determined on, first, by a positive reaction to a subcutaneous injection of tuberculin. All the cases except one were injected and gave a positive reaction. In this case (Case 15) tubercle bacilli were subsequently found in the sputum. Second, a history of exposure to an open case of tuberculosis (nine of the fifteen gave this history). Third, doubtful lung signs not sufficient in themselves to establish the diagnosis but valuable as corroborative evidence (six of the fifteen cases gave these).

Roentgen-ray chest examinations were made in six of the cases; in four the roentgenologist reported positive findings in the lungs, in two negative. In one of the cases (Case 12) the roentgenologist reported a healed lesion. The patient, however, gave a positive reaction to tuberculin. In a second case (Case 11) the roentgenologist was in doubt ("diagnosis indeterminate: possible very early incipient tuberculosis"). Yet the patient reacted to tuberculin.

CLINICAL SYMPTOMS

The clinical symptoms of which the patients complained were varied and failed to conform to the symptomatology of any known organic disease. The non-conformity of the symptom complex is a characteristic feature of the cases. Hence the usual diagnosis of neurasthenia.

Named in the order of their frequency they are indigestion (10 cases), headache (9), constipation (7), loss in weight (7), cold hands and feet (6), men-

* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Stiller: Die Asthenische Konstitutionskrankheit.

tal depression (6), crying spells (5), physical tire (5), neckache (5), backache (5), general weakness (5), mental tire (5), worrying over trifles (4), eyeache (4), dysmenorrhea (4), insomnia (3), pains in the chest (2), voice tire (2), dizziness (2), tendency to take deep breaths (2), clearing of throat (2), palpitation of heart (1), shortness of breath (1), fainting spells (1), jerking of limbs (1). Only four had cough and in only one of these was there sputum coughed up.

A careful study of the symptoms complained of gives one no help in differentiating these cases from so-called neurasthenia. The symptom complex they present is the symptom complex described by all writers for so-called neurasthenia. It is the symptom complex diagnosed by all clinicians as neurasthenia. It is so-called neurasthenia.

DURATION OF SYMPTOMS

The symptoms in this group of cases were suffered from over a long period of time. The duration of complaints is measured in years rather than months or weeks.

Five were sickly from childhood. Three complained of symptoms five years or over; four from one to two years, while only three of the fifteen dated their complaints back less than one year.

These patients apparently possess a high resistance against the tubercle bacillus: a relative immunity given to them by tuberculous ancestors or by an infection contracted in childhood which the cell forces of the body have reduced to a quiescent state. If this were not so there would be more active recognizable tuberculosis and less so-called neurasthenia.

In many of them the tuberculous process never becomes very active; the bacilli are probably finally killed out and the individual in later life comes into a fair degree of health.

In some active symptoms and signs appear only after years of suffering from the slow fires of a low-grade tuberculous toxemia often interpreted as neurasthenia (Case 15).

PHYSICAL FINDINGS

The physical examination of these patients revealed little or no positive evidence of organic disease.

In none was a positive clinical diagnosis of tuberculosis made. A searching examination of the chest and other organs was negative for tuberculosis or other organic disease in nine of the fifteen cases.

In the remaining six, doubtful physical signs in the chest were present; but in none of these were the findings fixed and definite enough to establish a diagnosis of tuberculosis beyond a reasonable doubt, even after weeks of observation.

In the majority of these patients the tuberculous process will go unrecognized or diagnosed as (so-called) neurasthenia if the clinician relies on the knowledge furnished him by physical examination alone.

PHYSICAL BUILD

Eleven of the individuals in this group were tall and slender. They had prominent, angular features; high cheek bones; long chests; long, flat or scaphoid abdomens, and slender arms and legs. Two were short of stature but slender build. Two others were of short, chunky build with round faces, broad full chests and short rounded abdomens, and short extremities.

All were of high-strung nervous temperament. All those (seven) in which the position of the abdominal organs was determined showed enteroptosis. Thirteen of the fifteen cases therefore conform to the physical construction of the "habitus phthisicus."

Stiller expresses the relationship between "habitus phthisicus" and "habitus asthenicus" in these words: "There is no doubt to my mind that the habitus phthisicus and habitus enteroptoticus are not only strikingly similar to each other but also are completely identical."[2] This study tends to confirm his conception.

TEMPERATURE

Ten of the group showed at times slight rises in temperature (99.2 to 99.4) usually in the afternoon with a subnormal morning temperature of (97 to 98.2). (Temperature records were taken with patients in bed.)

The afternoon rise would usually occur only occasionally, patients often going for days with no rise above normal. The subnormal morning temperature was more regular, most of the cases showing it day after day.

If these patients are up and about, however, they usually run a temperature of 99.2 to 100 under physical exertion or mental excitement.

These occasional temperature rises in persons with so-called neurasthenia are of great significance. They are often the only tangible clinical evidence of a concealed tuberculous lesion.

In this connection it is interesting to note that in Weir Mitchell's "Fat and Blood," every case reported by him (eight in all) in which systematic temperature records are given had fever (99.2 to 101.2).

PULSE-RATE

The pulse-rate in this group is characterized by its variability and its tendency to rise above the normal. The maximum was usually 100, the minimum about 70. In three cases the pulse-rate ran between 100 and 120. In two the minimum was as low as 60.

A variable pulse-rate is encountered in so many other organic conditions that its value from a diagnostic point of view is doubtful.

If, therefore, one were to draft a clinical picture of this condition with which we are dealing he would describe it as follows:

A person usually under 25 years of age with or often without a history of known exposure to tuberculosis comes complaining of a varied lot of symptoms expressing nervous and physical exhaustion, the most common of which are indigestion, headache, constipation, mental depression, cold hands and feet, backache, neckache, eyeache, crying spells, chilliness, loss of weight, etc. These symptoms have dated back over a number of years with periods of improvement followed by relapse under unusual nervous or physical strain. Partial or complete breakdown often results.

On inspection one notes a poorly nourished, high-strung person with angular features, high cheek bones, long chest and abdomen, slender arms and legs and active reflexes.

A careful physical examination reveals no positive evidence of organic disease. Enteroptosis is usually present. Doubtful lung signs are occasionally encountered. The pulse-rate is usually increased; the tem-

2. Es ist mir unzweifelhaft dass der habitus phthisicus und enteroptoticus nicht nur einander auffallend ähnlich sondern ganz und gar identisch sind.

perature record shows an occasional afternoon rise to from 99.2 to 99.4 or more. The laboratory findings are negative for organic disease.

The clinician is puzzled; the long history, the build and nervous construction of the individual, the absence of the signs of organic disease leads to the diagnosis of neurasthenia (so-called). But what is this disease called neurasthenia? Will some one please answer?

Are these patients negative for organic disease? I have given the historical summaries of fifteen in which the evidence is positive that a tuberculous infection exists. It is an active tuberculous process because I do not believe that any one will be so foolish as to argue that a positive reaction to a subcutaneous injection of tuberculin means anything less than an active tuberculous process somewhere in the individual giving that reaction.

The location of the lesion whether it be in the lungs, lymph-glands, peritoneum, bones, or wherever it may be focused need not concern us at present.

The fact stands out that in many of these individuals whom we have been considering negative for organic disease the evidence is incontrovertible that an active tuberculous infection does exist. Are we justified in taking the view that these symptoms of (so-called) neurasthenia are a clinical expression of such an infection? I think we are.

First, because we have no evidence to prove that these individuals harbor any other organic disease except tuberculosis.

Second, because we have good evidence for believing that tuberculosis is a chronic disease often contracted in childhood and remaining in the body in a semiquiescent state for years. The long history of many of these cases can thus be accounted for.

Third, because tuberculosis is the one chronic disease which gives most typically the symptoms of nervous and physical exhaustion encountered in neurasthenia (so-called).

Fourth, because we know that the tubercle bacillus produces a toxin (tuberculin) which circulates in the blood and is capable of producing for years a low-grade toxemia with all its varied clinical expressions.

Every experienced clinician marvels at the varied symptomatology of his recognized cases of tuberculosis, to say nothing of the clinical manifestation of those not recognized.

Are the cases presented patients with neurasthenia harboring an associated tuberculous process? I think not. If some one will demonstrate a pathologic base for neurasthenia so that it can be identified and differentiated from other diseases of known pathology, discussion on this phase of the subject might be profitably continued. In the absence of such pathologic lesions and with reliable proof of the existence in these individuals of a tuberculous process and of this only, it is only reasonable to conclude that an infection is present which is common and about which we know a great deal rather than with a name given to a symptom complex about which we know nothing.

A further question immediately presents itself. What proportion of the cases diagnosed as neurasthenia in which a careful physical examination reveals no tuberculosis, no lues, no nephritis, no exophthalmic goiter, no gastric ulcer or any other recognizable organic disease, shows evidence of a concealed tuberculous infection? I have not as yet sufficient clinical data at hand to answer this question. In my experience, after excluding all other organic diseases, the number of persons exhibiting the symptoms of so-called neurasthenia failing to react to a maximum dose of a subcutaneous injection of tuberculin is small.

But is it not probable that if one were to select a given number of individuals and subject them to the subcutaneous tuberculin test as large a proportion would react as have reacted in this series of cases?

To this question I answer: No. In between 500 and 600 individuals with symptoms suggestive of a tuberculous infection whom I have injected with tuberculin for diagnostic purposes during the last twenty years, not more than 55 per cent. have given a positive reaction.

I have presented no distinctly pathologic proof that a tuberculous lesion exists in these individuals. This is impossible. These patients are living. They may not die for years. When they do die and are examined of what value is the evidence? If a tuberculous lesion were present at necropsy how could one know whether it existed at the time the individual complained of his symptoms. If a tuberculous lesion is present and healed how can one know whether it was healed at the time of the patient's illness. It it is present and active how can one know whether the lesion was present and active at the time the patient complained of his nervous and physical exhaustion?

Post-mortem evidence has proved the reliability of the subcutaneous tuberculin test, and farther than this need not be called up in settling the question under consideration.

Nor can one rest his proof on the later development of recognizable tuberculous lesions. Some of these patients have already developed clinical evidence of the infection. Most of them have not and probably never will develop clinical tuberculosis as it is now understood.

The lesion is too minute, too well walled off, the bacilli are not virulent enough, or the resistance of the individual is too high.

It is for this very reason that so many of these cases are overlooked. It is for this very reason that the diagnosis of neurasthenia has so often been made.

Nor can the proof rest on the presence of tubercle bacilli in the sputum or other excreta. Most of these patients had no cough, hence no sputum and no tubercle bacilli in sputum.

A positive von Pirquet test was present in all but one case (Case 8). But a positive von Pirquet test can not be depended on to detect an active tuberculous infection. In this connection Case 8 is of interest. The von Pirquet test was negative while the subcutaneous test was positive. In my experience with between 500 and 600 injections of tuberculin for diagnostic purposes, I have met a number of cases in which the von Pirquet test was negative while the subcutaneous tuberculin test was positive. I shall make these cases a subject for a later study.

The stereoscopic Roentgen studies of the chest in the hands of an expert can be made of assistance in detecting some of these cases, but cannot be relied on in determining the broad question whether an active tuberculous process exists in these individuals.

The recognition of an active tuberculous infection in these cases must therefore rest primarily on a specific test (for this purpose I have used a subcutaneous injection of tuberculin), and secondarily on corroborative evidence such as a history of exposure to tuber-

culosis, or the presence of suggestive clinical evidence in the lungs, lymph-glands or elsewhere in the body.

I have here presented evidence, which it seems to me is conclusive to prove that:

1. Many individuals exhibiting the symptom syndrome of so-called neurasthenia harbor a tuberculous infection and this only.

2. The tuberculous process in most cases is so concealed as to escape detection by the usual clinical examination methods employed, and a specific test must be used to reveal its presence.

3. In the light of this evidence these cases should be diagnosed as tuberculosis and not neurasthenia.

4. We should recognize and adopt a new clinical symptom type for concealed tuberculosis.

5. This symptom type is the symptom complex now recognized by clinicians the world over as neurasthenia.

REPORT OF CASES

CASE 1.—Miss E. L., aged 23, single, living at home, admitted to the St. Barnabas Hospital, Oct. 14, 1913, complaining of backache, insomnia, spells of depression, indigestion. Family history negative.

Present history includes a long series of ailments of various sorts, curvature of spine at 5 years of age, at first thought to be tuberculous, later considered hysteric; chorea at 10 years of age; dysmenorrhea at 15 years of age; various abdominal operations finally terminating in hysterectomy in February, 1912. No cause given by the operating surgeon for the hysterectomy other than that he considered it best for the patient's general state of health. No pathologic lesions found.

History of present complaints dates back over a number of years and includes a long series of symptoms, including indigestion, vomiting, abdominal pain, pain in back, insomnia, constipation, attacks of mental depression with hysteric manifestations, crying spells, dizziness, aching in the neck, headache, eyeache and physical tire on exertion. Has had a slight nervous cough for years. Patient has lost about 15 pounds in weight in the last year. Has dieted to such an extent that she can scarcely eat solid food of any kind.

Patient is a tall, angular-looking girl, high cheek bones, long chest and abdomen, marked tremor upper eyelids, increased knee-jerks, pupils react to light and accommodation, no incoordination, some tremor of finger-tips, no enlarged thyroid, no exophthalmos. Patient presents the stigmata of a highly nervous girl; hands, arms and legs were constantly twitching during examination; seems melancholy and depressed. Careful physical examination of this patient, including searching examination of the lungs, revealed no evidence of organic disease. There was gastroptosis, a dislocated kidney on right side, tenderness over abdominal aorta and along lower spine. Urine and gastric examinations negative, no occult blood in stools. Blood examination showed slight secondary anemia (hemoglobin 87 per cent.). Wassermann reaction negative. Von Pirquet test positive.

Patient was carefully observed in hospital over a period of two weeks. She had an occasional rise in temperature to 99.2. Pulse 85 to 100. She presented all the earmarks of a highly neurotic young woman, with frequent crying spells, much mental depression, vomiting attacks, insomnia. Complained much of cold hands and feet, backache, headache, and slight dry cough. No sputum. Had two fainting spells while going to the bath room. Roentgen examination of spinal column and lungs negative.

On the fifteenth day after admission, patient was given 1/20 c.c. of Bureau tuberculin,[3] showing a positive reaction (temperature 102) within sixteen hours after the injection. Following the positive tuberculin reaction the clinical diagnosis of neurasthenia was abandoned and the diagnosis made of tuberculosis (concealed), focus not determined, with chronic tuberculous toxemia exhibiting so-called neurasthenic symptoms.

CASE 2.—Mrs. J., aged 37, married, one child. Family history negative for tuberculosis. Personal history negative except a miscarriage one year ago. Patient has been a healthy woman until one year ago when, following her miscarriage, she began losing in strength and weight.

Contracted la grippe about nine months ago which left her with a slight clearing of throat which continued for two months or more. This disappeared during the summer but reappeared again in the fall. No sputum coughed up. For the last three months has felt nervous and miserable; everything no matter how trifling seems like a mountain to her; she cries at the slightest provocation; is despondent and blue. The slightest exertion, mental or physical, tires her and she has had to give up all her social duties and home cares. Is bothered much with aching in the back of neck. Has had her eyes fitted repeatedly for glasses to relieve her headaches. Has cold hands and feet. Has had no pains in the chest. Appetite is poor. Has lost 10 pounds in weight in six months. Patient had been carefully examined by different physicians who told her she was nervous and should take a rest cure.

Patient is a short, stockily-built woman, with broad chest and short abdomen, dark hair and eyes. Mucous membranes rather pale. Well-nourished. Weeps during examination. Pupils react promptly to light and accommodation. Knee-jerks active. Marked tremor of eyelids with eyes closed. Active dermatographia. Pulse rapid, 120 to minute. Temperature at office 99.4. No exophthalmos. No von Graefe's sign. Some tremor of finger-tips.

A searching physical examination was negative for organic diseases except that in the lower right chest anteriorly over the fourth and fifth interspaces a fine pleural friction-rub could be heard. Repeated examinations always disclosed the friction-rub in this area.

Urine and blood examinations negative. Wassermann reaction negative. Von Pirquet test positive. Not being able to make a positive diagnosis the patient was given $\frac{1}{25}$ c.c. of Bureau tuberculin and gave a positive tuberculin reaction (temperature 100.4) within eighteen hours after injection was given. No Roentgen examination of chest made. The diagnosis of neurasthenia was then abandoned.

The friction-rub in right chest and the positive tuberculin reaction justified the diagnosis of tuberculosis of right pleura; chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

CASE 3.—Mrs. L. W. B., aged 30, married, no children. Family history negative except one brother dead of tuberculosis. Personal history negative except childhood diseases. Well as a young woman, never had been sick. Married three years and has been occupied with her husband (a college professor) in teaching work.

About one year ago began running down in weight. At that time was spending many hours in the classroom and doing much outside church and social work. Became blue and depressed; cried easily and on slightest provocation. Was tired all the time and could not get enough sleep. Had an aching pain in back of neck, especially when tired. Also had headaches. Lost her appetite. Chilled easily; hard to keep her hands and feet warm. Had a slight cough, especially when using her voice much. No sputum. Hoarsed up easily after talking. Had no fever, no night sweats. Became so nervous and worn out that she had to stop teaching. Consulted various physicians who told her she had neurasthenia and was overdoing.

Patient is a tall, well-developed woman, some pigmentation of skin over cheeks and face. Long chest and abdomen. Face round and full. Patient is much depressed and weeps during the taking of the history. Knee-jerks very active; active dermatographia; pupils react to light and accommodation. Some tenderness in neck and along spine and over abdominal aorta.

3. Bureau tuberculin is the tuberculin made by the U. S. Bureau of Animal Industry. It is a 10 per cent. solution of Koch's old tuberculin. It is the tuberculin used in testing cattle for tuberculosis.

A careful physical examination was negative for organic disease. There was gastroptosis. Urine and blood examinations were negative. No sputum. Pulse 95. Temperature showed an occasional afternoon rise to 99.2. A searching physical examination of the lungs was negative, except roughened breath-sounds in left apex. No impairment of percussion note. No râles heard. Von Pirquet test positive. No evidence of lues.

While under observation patient seemed a nervous, much depressed woman, cried at times and complained of aching pains in the head, neck, back, chest and limbs. On the fifth day a subcutaneous injection of 2 mg. of Koch's old tuberculin was given with a marked positive reaction (temperature 102.8) within sixteen hours following injection. No Roentgen examination of chest was made.

The diagnosis of neurasthenia was not confirmed. The diagnosis was made of tuberculosis (focus concealed) with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

CASE 4.—Mrs. W. V., aged 23, married, housewife, one child, referred to the University Hospital June 2, 1913, complaining of headache, dizziness, indigestion, backache, irregular and painful menstruation, and tenderness in the lower abdomen; symptoms dating back two and one-half years. Family history negative. Previous history negative, except whooping-cough as a child.

The patient was carefully studied for sixty-three days in the surgical service of the hospital and then referred to the medical service with the diagnosis of neurasthenia. After her transfer the patient was again examined. She was a tall, rather poorly nourished woman, high cheek bones, long chest and abdomen, color slightly anemic, active dermatographia.

A careful thorough examination including urine, blood and Roentgen-ray chest study revealed no evidence of organic disease. Wassermann reaction negative. Von Pirquet test positive. The patient exhibited the earmarks of a highly neurotic woman, and the provisional diagnosis of neurasthenia was concurred in. Pulse 60 to 90. Temperature normal with an occasional rise to 99.4 in the afternoon.

On the twenty-fourth day after admission to the medical service patient was given $\frac{1}{20}$ c.c. of Bureau tuberculin with a typical positive reaction within twelve hours following the injection (temperature rising to 101.6).

The diagnosis of neurasthenia was abandoned. The presence of a positive tuberculin reaction justified the diagnosis of concealed tuberculosis, focus not determined; chronic tuberculous toxemia exhibiting the symptoms of so-called neurasthenia.

CASE 5.—Miss I. P., aged 24, Scandinavian, single, white, housekeeper, admitted to the University Hospital Oct. 26, 1913, complaining of shortness of breath, headaches, precordial pain, lassitude and weakness on physical and mental exertion.

Family history negative. Personal history negative except usual childhood diseases. The patient was treated five years ago for neurasthenia and took a rest cure in a hospital. Her present complaints date back three months and includes a history of mental and physical tire, some loss in weight, headaches, especially when she reads, poor appetite and indigestion.

Patient is a tall, fairly well-nourished girl, high cheek bones, long chest and abdomen, fair color, pupils react to light and accommodation, knee-jerks active.

A thorough clinical investigation of this case, including pelvic and rectal examinations, also urine, blood and gastric studies, was negative for organic disease. No sputum. Wassermann reaction negative. Von Pirquet test positive. Temperature normal with an occasional rise to 99.2. Pulse 70 to 96. Clinical diagnosis based on the history of physical and nervous exhaustion with negative physical findings was neurasthenia with astigmatism (Macnie).

On the thirty-first day after admission patient was given subcutaneously $\frac{1}{20}$ c.c. of Bureau tuberculin with a typical positive reaction (temperature rising to 101.4) within twenty hours after injection of tuberculin. The diagnosis of neurasthenia was then abandoned.

The history and the positive tuberculin reaction in the absence of evidence of other organic disease justified the diagnosis of concealed tuberculosis, focus not determined; chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

CASE 6.—Miss H. W., aged 21, single, white, stenographer, admitted to the University Hospital, Jan. 28, 1913, complaining of pains in abdomen, indigestion, dysmenorrhea and nervousness.

Family history negative except that mother died after five months' illness of probable tuberculosis of lungs. One sister now has chronic cough. Patient has never been strong, long history of backaches, menstrual troubles and recurring winter colds. In July, 1911, had a nervous breakdown followed by a period of weakness and prostration. Finally became so weak and run down that she had to stop work.

Present complaint dates back over two years and consists of a long history of ill-defined pains in upper and lower abdomen and left chest, associated with indigestion, eructations of gas, nausea, loss in weight, cold hands and feet, painful menstruation, prostration and weakness.

Patient is a fairly well-nourished young woman, seems weak and talks in a low voice; long chest and abdomen; color good; pupils react to light and accommodation; knee-jerks active; palpable postcervical lymph-glands.

A careful thorough physical examination of this patient, including repeated examination of the lungs, revealed no positive evidence of organic disease.

The apex of the right lung was questionable; there was marked visceroptosis; blood and urine negative; there was no sputum; von Pirquet test was positive; Wassermann test not made. Temperature normal. Pulse 70 to 100. No positive diagnosis could be made. The patient was high-strung and nervous and this fact together with the negative clinical findings led to the diagnosis of neurasthenia.

On the thirteenth day after admission patient was given $\frac{1}{20}$ c.c. of Bureau tuberculin subcutaneously with a typical positive reaction (temperature 100.4) within sixteen hours.

Roentgen examination of chest twelve days later showed "diffuse infiltration of both lung fields, especially marked in the right" (Bissell).

The diagnosis of neurasthenia was therefore abandoned and the diagnosis made of pulmonary tuberculosis with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

CASE 7.—Miss M. L., aged 32, single, stenographer. Father died of tuberculosis of the lungs, four sisters and one brother dead of tuberculosis of the lungs. Never strong as a girl, subject to colds and bronchitis. Three years ago was in California for bronchitis one winter during which she gained 12 pounds in weight. Gives a long history of ups and downs with weakness, poor indigestion, exhaustion from physical effort, aching in the back and loss in weight.

Comes now for pains in her right chest and precordial region which she has had for about a week. Has had pains also in the left chest for a month or more. Pains are a dull ache, and chest is sore to pressure. Occasionally patient feels pains in axillae, left scapula and back. Deep breathing or cough does not aggravate them.

For about two years patient has had a clearing of her throat, more marked in the morning. Has lost 10 pounds in weight during the past year. Appetite is poor. Is bothered much with sleeplessness. Has pains at her menstruation, and now feels so weak and nervous that she has had to stop work.

Has been examined by many physicians and lung specialists, all of whom had suspected her of being tuberculous, but none of whom had been able to find evidence of tuberculosis in the lungs or elsewhere in the body and had, therefore, diagnosed her case as neurasthenia.

Patient is a fairly well-nourished girl, looks high-strung and neurotic, color pale, light hair and eyes, high cheek bones, long chest and abdomen, pupils react to light and accommodation, tremor of finger-tips, knee-jerks active.

A careful physical examination of this patient revealed no evidence of organic disease. A searching physical exami-

nation of the lungs was negative for tuberculosis. Patient had a moderate grade of gastroptosis. Sputum and urine examinations negative. Von Pirquet test positive. Blood-pressure 116. Pulse 90 to 100. Temperature normal.

Not being willing to accept the diagnosis of neurasthenia, and not being able to make the diagnosis of tuberculosis, the patient was subjected to an injection of 1/25 c.c. of Bureau tuberculin, and gave a positive reaction (temperature of 102) within eight hours after injection was given.

The clinical diagnosis of tuberculosis (concealed) with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia was then made.

CASE 8.—Miss L., aged 25, Jewess, single, stenographer. Family history negative except that mother died of tuberculosis when patient was a child at home.

Personal history negative except walking typhoid fever (?) five years ago. Operated on twice for pelvic displacements. Present history dates back six years and includes a long history of nervous symptoms, including headaches, backache, neckache, insomnia, cold hands and feet, indigestion, cough, exhaustion, rest cures, operations, treatment by osteopaths and Christian Scientists, etc. Insomnia and indigestion have been her most troublesome symptoms. Has been seen and examined by many physicians and the diagnosis of neurasthenia usually made. Has taken a number of rest cures from which she would temporarily improve and go back to work only to relapse into a weak, prostrated state, rendering her unfit for her occupation. Has lost 40 pounds in weight in the last six years.

Patient is an ambitious, intelligent, bright young woman, dark hair and eyes, high cheek bones, long chest and abdomen, slender limbs, pupils react promptly to light and accommodation, knee-jerks active, pulsating abdominal aorta, active dermatographia. Marked tremor of eyelids with eyes closed. No exophthalmos, no von Graefe's sign, no enlargement of thyroid.

A careful physical examination of this patient revealed no evidence of organic disease. There was marked gastroptosis and bilateral nephroptosis. Blood, urine and stomach examinations negative for organic disease. No Wassermann test made. Exploratory abdominal section negative for organic diseases in stomach, gall-bladder, appendix or elsewhere. Searching examination of lungs revealed no evidence of tuberculosis. Von Pirquet test negative. Temperature showed an occasional rise to 99. Pulse 80 to 100. The clinical diagnosis of neurasthenia seemed justified.

After patient had been under observation for six weeks and despite the negative von Pirquet, the patient was given 1/25 c.c. of Bureau tuberculin with a typical positive reaction (temperature 101) within twenty-four hours following the injection.

The clinical diagnosis of neurasthenia was then abandoned and the diagnosis made of tuberculosis (focus concealed) with a chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

CASE 9.—Miss S. (referred by her physician as a case of neurasthenia and admitted to Asbury Methodist Hospital, Dec. 1, 1909), aged 23, living at home, family history negative except that two sisters have died of tuberculosis of the lungs. Has never been a strong girl. Has always been very nervous and of late on account of a mental worry has been bothered with a constant desire to take deep breaths. This deep breathing occurs during the day while she is awake; is not aware of it at night (is present while the history is being taken). At times has a slight cough which has always been considered a nervous cough. No sputum coughed up. Has not lost in weight. Occasionally has slight fever (99.2). No sweats, no chills. For the last week has complained of feelings of distress in the upper abdomen.

Patient is a fairly well-nourished girl, sensible and intelligent, seems high-strung and fidgety, good color, long chest and abdomen, pupils react to light, knee-jerks very active, tremor of eyelids. During the examination patient keeps taking long deep breaths in rapid succession, one after the other. The deep breathing is worse when she sits up than when lying down.

A careful physical examination of this case including a searching examination of the lungs reveals no evidence of organic disease. Blood, urine and gastric contents normal. Von Pirquet test positive. The abdominal aorta was pulsating and tender and there was ill-defined tenderness over the upper abdomen, but no mass. Patient was repeatedly examined but no conclusion could be arrived at.

On the seventh day after admission patient was given 1/15 c.c. of Bureau tuberculin and gave a typical positive reaction with a temperature rise to 101.5 within fourteen hours following the injection. No Roentgen examination of the chest was made.

The diagnosis of neurasthenia was therefore not confirmed, but the diagnosis of concealed tuberculosis with chronic tuberculous toxemia producing neurasthenic symptoms was made. The focus could not be located.

CASE 10.—W. K., aged 29, male, single, American, carpenter, referred to the University Hospital, Feb. 16, 1912, as a case of nervous dyspepsia and neurasthenia. Family history negative. No tuberculosis. Denies venereal disease. Has had mumps and small-pox.

Dec. 7, 1911, patient began complaining of palpitation of the heart. Consulted a physician who examined his heart and pronounced it all right. The attacks continued for a number of days until his stomach was washed out, since which time the palpitation has not bothered him. Patient has not felt well since the attacks in December. Is bothered with belching of gas after meals, constipation, headaches, especially at night, has felt weak and nervous, has frequent urination, and at times ringing in his ears. Patient has no cough. He has lost about 17 pounds in weight since sickness came on.

Patient is a thin, spare man, fairly well-nourished, color good, answers questions promptly and to the point, is nervous and apprehensive about himself. Pupils equal, react to light and accommodation, knee-jerks active, slight cyanosis of lips and finger-tips, cervical glands just palpable.

A careful physical examination of this patient revealed no evidence of organic disease, except a questionable area on the upper right chest anteriorly below clavicle. Here the percussion note is slightly impaired, expiration somewhat prolonged and a few fine cracking râles could at times be heard at the close of inspiration close to the right sternal border in first interspace. Blood examination showed a secondary anemia of mild grade. Urine and sputum negative. Von Pirquet test positive. Gastric analysis negative except an increased acidity. Pulse 60 to 80. Temperature 97 to 98.4.

On the tenth day after admission patient was given 1/50 c.c. of Bureau tuberculin with a positive typical reaction (temperature 102.0) within sixteen hours following the injection.

Roentgen examination of chest March 1: "There is a rather marked thickening about the hilus of the right lung. A number of peribronchial lymph-nodes in both lungs. The right apex is distinctly more dense than the left." Roentgen diagnosis: Incipient tuberculosis (Bissell).

The diagnosis of neurasthenia could not be confirmed. The suspicious physical signs in the chest, the positive tuberculin reaction, the Roentgen chest findings justified the diagnosis of tuberculosis of the right lung with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.[4]

Donaldson Building.

ABSTRACT OF DISCUSSION

DR. NATHAN ROSEWATER, Cleveland: Dr. Head is right in distinguishing these cases of disguised starvation from neurasthenias. I believe a much larger class which have "that tired feeling" in the morning after sound sleep are obviously not neurasthenias, since the neurasthenic class after a night of rest with sleep wake up refreshed from the rest of nerves, brain and body, and only as they tire out sooner or later do they fag. Another class described in the paper which I read before this Section in 1908 as cases of "disguised starvation" should also be excluded.

4. Cases 11 to 15 omitted because of lack of space.

These are cases of more or less undernourishment resulting in more or less bankruptcy of brain, muscles, organs or tissues with impoverishment of circulatory fluids, which condition is perhaps the greatest cause of non-resistance to tuberculosis or other germ invasion, because neither the blood-stream nor the exhausted cells are in any condition to offer the necessary 100 per cent. or more of resistance to the invading germs from without, nor are they able to prevent the breaking down of foci already present. A class akin, is of those who wake refreshed but complain of wearing out before or soon after noon, unable to keep brain and body at work. On questioning these we find that they have taken for breakfast a cup of coffee, with or without a little bread. This insignificant meal cannot prevent the human machine from breaking down, any more than an automobile can be kept going when one starts away with a pint of gasoline instead of five gallons. These patients when advised to eat three or four eggs for breakfast come back reporting that they are veritable indefatigable steam-engines. Tuberculin may give a positive reaction in nearly all cases in adults but that does not prove active tuberculosis. A woman patient suffered from insomnia, but was otherwise well. Roentgenograms were made and she was told she had pulmonary tuberculosis, basing it on the Roentgen-ray findings and rapid pulse. She had neither fever, cough, râles nor other symptoms. She was examined by three abler men than myself and no active tuberculosis found. This was nearly five years ago and she is still in excellent health. As to the enteroptoses, they may be primary or secondary, mostly the latter. I have seen many with nephroptosis, gastroptosis, etc., some with Stiller's habitus and quite a number without. These ptoses are due to asthenias, occurring before or after the development of the habitus, and caused primarily by a large variety of undermining, exhausting influences, metabolic, toxic, infectious, psychic, or by overstrain or underfeeding, and not until the primary causes and the ptoses are overcome will these secondary asthenias respond to treatment.

DR. F. M. POTTENGER, Los Angeles: Dr. Head has illustrated the important fact that neurasthenia has a tuberculous toxemia as an underlying cause in a large percentage of cases. Tuberculosis affects all of the systems of the body, and, strange to say, even the symptoms of the early pulmonary form of the disease calls the attention away from the lungs rather than to them, the larynx, the heart, the stomach and the nervous system seemingly being affected. This neurasthenia is better understood when we recall that tuberculosis begins in childhood; that nearly every individual is affected; that the lesion heals in some at once, but in many passes through stages of quiescence and activity, extending now and then from the primary focus of infection to other parts of the body, so that necropsies in adults show more than 50 per cent. in and about the apices of the lungs. From such lesions as fail to heal, toxins are given off which have a profound effect on the nervous system, producing neurasthenia. Many young people who fail to develop properly, who have lowered resistance and manifest an unstable nervous system belong to this group. Such patients often respond remarkably well to the measures used in the treatment of tuberculosis and are definitely benefited by tuberculin treatment. Many believe that the phthisical habitus is often a result of tuberculosis instead of a cause. Unless the medical profession can get away from their conception that tuberculosis is the disease which we usually term consumption, and will recognize the early infection and the slight symptoms which are produced months, sometimes years before the active advanced stage manifests itself, it will miss completely the point of the modern teaching concerning this disease.

DR. CHARLES STOVER, Amsterdam, N. Y.: Myasthenia gravis should be differentiated before determining that the patient is suffering from neurasthenia. It is not uncommon, particularly among those who are interested in diseases of the nervous system, to meet both the neurasthenic and tuberculous type of cases which, in course of time, come under the classification of myasthenia gravis.

DR. ELIZA MOSHER, Brooklyn: I have been much interested in the statement that nearly all of the patients included in Dr. Head's report had enteroptosis. According to Sir Arbuthnot Lane of London, intestinal stasis due to enteroptosis is one of the underlying causes of a large number of special diseases, tuberculosis among the number, and I believe he is right. We are finding behind many cases of neurasthenia, melancholia and even epilepsy, the systemic poisoning produced by the products of chronic intestinal stasis, and as we become skilled in the diagnosis of gastro-intestinal displacements, "bands" and "kinks," we shall more and more often find one or all of these conditions present in the abdomen of patients suffering in these and other ways. I also understood Dr. Head to say that in the cases he reported the long slender trunk so common among young tuberculous patients was a common feature. I have yet to find a delicately built girl of this type, especially if she has broad hips, who does not manifest a strong tendency to enteroptosis. Dr. Head's cases should arouse us all to the importance of making a careful examination of the abdomen in all of our patients and especially in slender-bodied undernourished, neurasthenic girls and women.

DR. A. J. CAFFREY, Milwaukee, Wis.: We all know that a very large number of neurasthenics pass through the free dispensaries, and I have charge of the medical department of the free clinics in the Marquette University at Milwaukee and have been making routine tuberculin tests of the patients we class as having neurasthenia. In nearly all cases, perhaps 90 per cent., there is a positive reaction to subcutaneous injections of tuberculin and also to the von Pirquet test. I think, from these observations, that there must be some direct connection between neurasthenia and concealed tuberculosis.

DR. JOHN RITTER, Chicago: I have observed that in at least 40 per cent. of the so-called neurasthenic patients, tuberculosis in some form is present. It, like walking typhoid, belongs to that large category of diseases in which more than 50 per cent. of patients are tuberculous. We see it in cases of hypo-acidity, of which at least 30 per cent. point to tuberculosis. All these, like tuberculosis following trauma, are manifestations of a previous existence of tuberculosis, the symptom-complex only following in the train of a previous disease. Tuberculosis is, as Dr. Pottenger points out, like syphilis and follows a similar course. The full picture of pulmonary tuberculosis is only the last or tertiary stage of the disease following long after the primary infection. I cannot too strongly emphasize that, in the use of tuberculin for diagnostic purposes, the intracutaneous mode of application should be used and not the subcutaneous. In the public schools in Vienna every child, at entrance, is given a von Pirquet test for diagnostic purposes. To all who do not react to this test a second one is given intracutaneously, and it has been observed that about 80 per cent. of those children who do not react primarily to the von Pirquet react positively to the Manteau test. With regard to the cases of healed lesions, the application of tuberculin for testing purposes is of no value because from the very nature of the diesase we know that these cases all react positively.

DR. TOM A. WILLIAMS, Washington, D. C.: I cannot agree with Dr. Head's statement that all neurasthenia is due to latent tuberculosis. While I am one of the few neurologists who believe that neurasthenia, unlike psychasthenia and hysteria (which are psychogenetic), is a purely physical disorder and, moreover, due to some cause or other extraneous to the nervous system, rather than to hypothetic "nerve fatigue," I cannot accept latent tuberculosis as the sole source. We must remember that symptoms quite similar to those described by Dr. Head, are not uncommon, as every southern physician knows, in the early stages of pellagra, in hookworm disease and in latent malaria. Besides dysthyroidea as well as other glandular irregularities is responsible for disorders often labeled neurasthenic. In connection with Dr. Head's thesis, however, it is interesting to

recall the investigation made in the neurologic clinic of the New York Postgraduate Hospital some years ago by Dr. Haskell, who found many of the neurasthenics suffering from a tuberculosis which had been overlooked by other physicians. Many of us regard enteroptosis not as the cause but as the effect of asthenic states, to which also the intestinal disorders may be secondary; furthermore, it must be remembered that many cases of enteroptosis develop neither neurasthenia nor tuberculosis. With these qualifications, Dr. Head's paper should be of the greatest value in warning practitioners against permitting themselves to make a diagnosis of neurasthenia.

DR. WALTER B. SWIFT, Boston: I agree with Dr. Williams that not all patients with neurasthenia have tuberculosis. A young woman in the neurologic service of the Boston City Hospital presented all the typical signs of neurasthenia. Six or eight months after that diagnosis was made she died of carcinoma of the stomach. Neurasthenia is not a useless word. It makes a good waste-basket—something to say in place of "I don't know." We would do better to dispense with not the word but the waste-basket and instead give these patients further exhaustive physical and mental investigation.

DR. ALBERT ROBIN, Wilmington, Del.: Neurasthenia is a word rather loosely used to the great disadvantage of the suffering public. This term "neurasthenia" is now used as the term "malaria" was formerly used. The more we practice medicine the better diagnoses are made and we do not have to fall back on these terms of doubtful significance. In connection with my work at the tuberculosis clinic for the past ten years fully 20 per cent. of those applying for treatment have no other physical examination made except a casual one through the patient's clothing. I believe that neurasthenia is intimately associated with the early stages of tuberculosis, and because few men are able to make a diagnosis of incipient tuberculosis it is necessary to formulate some scheme by which a diagnosis in the early stages of tuberculosis may be arrived at. The busy doctor has not the time to make a thorough examination in these cases; in fact he hardly has the time to read his medical journals, and thus familiarize himself with latest methods. It should be remembered, in making a differential diagnosis between neurasthenia and tuberculosis, that in the former disease there is no elevation of temperature. In every case of tuberculosis or tuberculous toxemia, in these cases of concealed tuberculosis at one time or another there is a slight elevation of temperature. This temperature curve appears particularly after exercise. The question of exercise in making a diagnosis of concealed tuberculosis is one of great importance, and if patients are kept under observation for any length of time the diagnosis can be readily made. I am referring to slight exercises. I generally instruct the patient to walk to my office every evening, for a week, and I take his temperature immediately on arrival. A slight elevation of temperature will appear which will not appear at other times. I am in favor of an educational campaign among physicians that will cause them to be more careful in examining their patients in order to detect concealed tuberculosis or the disease in its earlier stages. I want particularly to emphasize the importance of detecting this elevation of temperature following exercise, which is as diagnostic as the reaction following injections of tuberculin, and far safer. The symptom-complex of neurasthenia plus slight elevation of temperature on exertion, plus rapid pulse, means tuberculosis.

DR. J. P. MUNROE, Charlotte, N. C.: In a paper which was read at the state society of North Carolina it was stated that the tubercle bacilli found in animals in the mountains were acid-stained and in every animal examined they were practically identical with the tubercle bacilli found in the human body. Also the symptoms appearing in these tuberculous animals were like those that appeared in the human being.

DR. ROBERT N. WILLSON, Philadelphia: It would seem as though one were taking a rather radical step in endeavoring to include in the term "tuberculosis" all or even a large percentage of the cases of neurasthenia or nerve-tire. No one questions that the tuberculous toxin may and does predispose to neurasthenia in certain cases. Just as certainly there are many patients with neurasthenia who show no evidence during life of tuberculous infection, either before or after their cure. Most cured neurasthenics enter on their convalescence without any treatment directed toward or suitable to tuberculosis. Again, many cases of neurasthenia have a definite etiology that can be traced altogether distinct from tuberculosis, such as cardiac disease, intestinal toxemia, nervous overwork or worry, syphilis, oftentimes the very lack of a definite object in life and the consequent irritation and fretting of unsympathetic home surroundings. Neurologists speak of various types, sexual, cerebral, cerebrospinal, gastric and circulatory. Often these terms are more closely related to the etiology than to the symptomatology. Not one of the pictures is necessarily tuberculous. Of course any one may be, in a given instance. An important etiologic phase of the subject has been altogether neglected in the discussion, which would have been touched on at once had there been a thoroughgoing neurologist present. No one has mentioned the fact that practically every case of neurasthenia develops from neurotic and often from positively neurasthenic soil. We seldom fail to find the parentage of a neurasthenic tainted on one side or the other with nervous invalidism. Alcoholism, epilepsy, insanity, hysteria and neurasthenia are the progenitors of neurasthenia in the second generation. Tuberculosis may or may not be present as a concomitant, and perhaps as an exciting factor. When the soil is tainted, however, tuberculosis is not needed as a factor in the causation of the neurasthenia, which will develop in the child of the neurotic parent when the conditions are right.

DR. GEORGE DOUGLAS HEAD, Minneapolis: My contention is not that all cases of so-called neurasthenia harbor a latent tuberculosis, but that in the group of cases clinically diagnosed as neurasthenia, after excluding syphilis, heart-disease, exophthalmic goiter, gastric ulcer, nephritis and all other known organic diseases, a certain number remain in which no organic lesion can be found. This "remnant group" has been considered negative for organic disease, and because of the existence of these cases the clinical entity neurasthenia has been kept alive. Now when the individuals in this group supposed to be free of organic disease are tested with tuberculin, a large percentage of them show evidence of harboring an active tuberculous lesion, so concealed, however, as to escape detection by the usual clinical examination even of the most searching kind. I contend that the symptoms of nervous and physical exhaustion displayed by these patients and now diagnosed as so-called neurasthenia is in reality a clinical expression of a concealed tuberculous lesion and that we should recognize a new clinical symptom-type for concealed tuberculosis which is the symptom-type we now give to neurasthenia. The question has been asked, What percentage of the cases in this "remnant group" of so-called neurasthenias give evidence of harboring concealed tuberculous lesions? I am not prepared to answer this question at this time because my series of observed cases is not large enough to give reliable data. Roughly speaking, I should say that about 20 per cent. of the "remnant group" fail to give a reaction to a subcutaneous injection of tuberculin.

The Thyroid Problem.—How the tissues are affected by the secretion of the thyroid is an enigma. But the fact is certain. For the adrenal cortex even so much as that cannot be said. There is only the conjecture that this fatty substance is essential to a man's strength and manhood. . . . To the Australian or "black fellow doctors" the fat above the kidney was magic. If by incantations it could be removed from an enemy as he slept, the victim would surely lose his strength and die. We know as much, that there is no warm-blooded life without these glands.—T. R. Elliott, *Brit. Med. Jour.*, June 27, 1914.

INTRARECTAL ADMINISTRATION OF SODIUM SALICYLATE IN ACUTE RHEUMATIC FEVER WITH SATISFACTORY RESULTS*

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In 1912, I published a report[1] covering 22 cases in which the intrarectal administration of sodium salicylate in acute rheumatic fever was apparently successful. The present report is based on 100 additional cases in hospital and private practice, the results of which indicate the advantage of this method over the usual modes of treatment in acute rheumatic fever and I would urge the adoption of the method at the hands of this representative body.

The intrarectal method of salicylate administration was adopted in 1911 on the East Medical Service in the Cincinnati General Hospital after observing the number of refractory cases of acute and subacute rheumatism in the wards. Previous to this, text-books had mentioned the possibility of such a method of treatment, while very meager reports had appeared in the literature (notably, however, Erlanger's in 1893 from the Klinik Von Ziemsen), but no attempt had been made to urge the general adoption of this measure as the method of choice. Erlanger[2] reported twenty-five cases with seventy-eight salicylate enemas and his report showed very satisfactory results with as small a dosage as from 6 to 8 gm. daily, and also gave satisfactory proof of the ready absorbability of the drug by the rectum.

But the value of the intrarectal sodium salicylate administration has not met any general recognition. Many other drugs have been given per rectum, most often for their local effect, as quassia, silver preparations, tannic acid, while certain others, as opium, digitalis, collargol, quinin and various serums have been used for their remote effects, but most of these latter if not to be administered by mouth may be used preferably by the subcutaneous method, a method not to be so readily adopted for salicylate medication, though Seibert reports satisfactory results. Heretofore we have permitted ourselves to be satisfied with the administration of sodium salicylate by mouth and the results have without doubt justified the designation of the drug as a specific in acute rheumatic fever.

The salicylic acid group of substances is bactericidal and according to Meyer and Gottlieb, salicylic acid is probably etiotropic, that is, acting on the cause of the disease. If the recent investigations of Pointon and Paine and Rosenow are to be regarded as conclusive, we must look to a bactericidal agent for rational therapy and in the absence of a specific serum or vaccine, sodium salicylate and certain newer salicylic acid preparations as, salol, aspirin, salipyrin remain our principal weapons in acute rheumatic fevers.

But why should there be so many failures with salicylic acid therapy, which is in every way to be regarded as a specific? No doubt in many instances there are foci of reinfection, in which surgical measures may be necessary. But in very many instances there has been insufficient dosage due most often perhaps to the frequent intolerance of the drug by mouth; and following on this failure the drug manufacturers have not been slow to introduce preparations more readily tolerated, but without doubt less efficient than sodium salicylate in the therapy of acute rheumatic fever. There is still much indifference among medical men toward pharmacology and therapeutics, perhaps inherited from the days of therapeutic nihilism, and if we fail in a therapy learned possibly in student days, many are apt to seek at once the new therapeutics as taught by the detail men.

If a routine administration of sodium salicylate has not always given brilliant results as it often does, however, the drug should not have yielded its position so largely to the newer salicylic acid preparations. As a solution to the problem of rheumatic therapy, intrarectal administration of sodium salicylates is offered as the method of choice and as excellent a therapeutist as the late Dr. Frederick Forchheimer declared it to be the best method yet devised for the treatment of acute rheumatic fever.

The method has for its justification its ability to answer the requirements of any therapeutic agent: (1) the ease of administration; (2) the ready absorption of the drug; (3) a minimum of untoward effects; (4) the ability to administer large quantities of the preparation as is to be advocated in bactericidal therapy; (5) the removal of the residue of the drug from the bowel by subsequent enema, if the dosage ever proves excessive; (6) the results are more prompt than by any other measure.

EASE OF ADMINISTRATION

I have used intrarectal salicylate therapy in 125 cases of joint affections, the majority of which occurred in hospital practice, where, to be sure, the method is most easily carried out. The method, however, lends itself readily to private practice as well. Recently in a severe protracted case of rheumatic fever occurring in a rural district, I advised the removal of the patient to a hospital in Cincinnati, in order to carry out the rectal therapy. The wife of the patient thought that she might be able to carry out the treatment at home and she did so and was promptly successful. I received a similar report from a physician in South Dakota recently and there is reason to believe that the method has been widely used since my report two years ago.

The method of administration is as follows: A cleansing soapsuds enema is given and as soon as effective is followed by the salicylate enema given by means of a Davidson syringe and a rectal tube inserted 6 to 8 inches. The dose varies according to the size and sex of the patient and also according to the severity of the case. The first adult dose in men is usually from 8 to 10 gm., in women 6 gm., women being apparently more susceptible to salicylism than men. The synthetic salicylate has been used, especially since the clinical research carried out by the Council on Pharmacy and Chemistry, in which I had the privilege of assisting, the results of which proved the practical similarity in action of the synthetic and natural salicylates. The amount of salicylate to be given is incorporated in 120 to 180 c.c. of plain or starch water with the addition of 1 to 1.5 gm. of opium tincture. The dose of salicylate may be repeated in twelve hours, when it can usually be determined whether symptoms of salicylism will appear. Usually, however, a daily

* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Heyn, Louis G.: Acute Articular Rheumatism Treated by the Rectal Administration of Sodium Salicylate, THE JOURNAL A. M. A., April 6, 1912, p. 1013.

2. Erlanger: Deutsch. Arch. f. klin. Med., 1893, li-lii.

enema suffices with doses increasing perhaps from 30 to 50 per cent. daily until the limit of tolerance is reached. The largest daily dose which has been given has been 24 gm., and the only symptoms of salicylism which usually have appeared have been tinnitus and excessive perspiration. Once or twice there has been vomiting present, which might occur in the administration of even a simple enema. Where salicylism has been excessive, it usually appears within from three to six hours and the remaining unabsorbed portion of salicylate may be washed out of the bowel by subsequent enema. This has been resorted to very infrequently indeed, and it is rare also that the rectum is intolerant of the drug. I do not agree with Erlanger that the plain water enema is more readily retained than the starch water, although the former is more simple, which is in its favor. It might be said at this point also that salicylate medication must continue some days after all symptoms have subsided, otherwise recurrences are frequent.

READY ABSORPTION

In testing out the value of this method it was interesting to note the promptness of absorption by the rectal mucous membrane. Usually within fifteen minutes, always within thirty minutes, a strong ferric chlorid reaction appeared in the urine and the reaction usually persisted for from forty-eight to seventy-two hours after the administration of the drug ceased.

To show also that complete absorption was usually possible, the stool subsequent to the salicylate enema was examined by acidifying with hydrochloric acid, extraction with ether and testing with ferric chlorid. As a rule usually within from twenty-four to thirty-six hours, depending on the size of the dose, there was complete absorption as shown by a negative reaction. (It would seem that the greatest absorption is within twelve hours.)

PROMPTNESS OF ACTION

Results show promptness of action. If we consider acute rheumatic fever as a disease which runs a most variable course, with a migrating involvement of usually many joints, each affected joint remaining at an acute stage of inflammation for several days, the attack possibly running a severe course of one or two months, often in spite of a more or less vigorous treatment (or there may be a less severe course involving fewer joints or perhaps only a subacute recurrent course of the disease) it may be readily seen that a satisfactory judgment of a therapeutic measure in this disease may be very difficult. A satisfactory therapeutic agent in acute rheumatic fever, however, should accomplish the following results: promptly lessen and eventually abolish all symptoms of the disease, materially shorten the course of the disease, reduce cardiac complications to a minimum and possibly prevent recurrences.

The following illustrative cases in which the intrarectal administration of sodium salicylate has been resorted to may be convincing.

CASE 1.—Man, aged 32. Attack began ten days previous to admission to the Cincinnati Hospital, with successive involvement of the right hip and right knee, left knee and ankle and left shoulder. On admission the joints most acutely affected were the left elbow, left shoulder, left wrist and several phalangeal joints of both hands. The temperature reached 102 F. the first day. A salicylate enema of 10 gm. was given and a similar enema twelve hours later with complete cessation of symptoms and prompt drop of the temperature to normal. Three subsequent enemas of 10 gm. each were administered on three successive days with no recurrence or cardiac complications, the patient insisting on leaving the hospital four days after admission.

CASE 2.—Man, aged 34. On admission to the Cincinnati Hospital patient had a temperature of 103 F. and involvement of both knees and both ankles acutely. Ten gm. of sodium salicylate were given daily per rectum. The second day of residence in the hospital the temperature reached 102.4 F. and only the right knee remained acutely inflamed. The third day the temperature had reached normal and there were no joint symptoms remaining. The patient insisted on leaving the house on the fourth day.

CASE 3.—Colored woman, aged 27. Patient had involvement of both ankles and wrists and a temperature ranging from 101 to 102 during three days' residence in the hospital, during which time sodium salicylate (20 grains) was administered by mouth every three hours during the day. Symptoms were uninfluenced by medication per os. After a single salicylate enema of 10 gm. the temperature dropped to normal and remained there and there was a complete subsidence of symptoms. The enemas were continued for four days subsequently.

CASE 4.—Man, aged 39. Admitted July 16, 1912, with a temperature of 101.6 F., pulse 108. There was involvement of both knees and ankles and both shoulders and wrists. Sodium salicylate enemas of 10 gm. were given daily. Three days later there was a maximum temperature of 100 with maximum pulse 104 and all joints except wrists were improved. The fourth day 13.3 gm. of sodium salicylate were given with complete cessation of symptoms, but with some salicylism and the enemas were discontinued. On the fourth day after discontinuance of the enemas, however, there was some recurrence of joint symptoms and 13.3 gm. were administered for four successive days in spite of some tinnitus and excessive perspiration. The temperature became normal and the joint symptoms subsided completely within ten days, during which time a total of 100 gm. of sodium salicylate had been administered. This case was somewhat refractory on account of the salicylism, but we were able to carry the treatment carefully to a successful issue.

These cases are fairly illustrative of the efficacy of the intrarectal salicylate therapy and if the more common methods of treatment in acute rheumatic fever have so often been disappointing, the intrarectal method is offered as a very safe and reliable solution to the therapy of this serious affection.

22 West Seventh Street.

ABSTRACT OF DISCUSSION

DR. E. W. MITCHELL, Cincinnati: I wish to corroborate the report made by my associate concerning the value of the rectal method of administering the salicylate. To obtain the specific action of the drug, the primary doses should be large. It is often quite difficult to give sufficiently large doses by the mouth. We have seldom found difficulty in giving by rectum from 75 to 150 grains, twice daily. That the drug is promptly absorbed is shown by its early appearance in the urine, as Dr. Heyn stated, and also by the relief of pain, reduction of temperature, etc. Notwithstanding these evidences of absorption, we have found almost constantly that the ringing in the ears, nausea and other unpleasant effects are much less marked than when given by the mouth. Why this should be so I do not know, unless the local irritation of the stomach is responsible for many of the unpleasant effects of the salicylate. We believe that salicylic acid is a specific, but that it must be given in large doses in the early stage of the disease. It has been objected that while salicylic acid itself is a germicide, its salts are very feebly so, and however given salicylic acid always circulates in the blood as a salicylate. Dr. Wood has recently offered an ingenious explanation in answer to this objection. His theory is that the excess of carbonic acid in the congested areas converts the salicylates into salicylic acid, enabling it to exert its germi-

cidal or antiseptic power. I have also found the rectal method successful in private practice, whenever a competent nurse was in charge.

Dr. Joseph L. Miller, Chicago: Dr. Heyn shows that salicylates when administered by rectum are actually absorbed, but it is difficult to understand why salicylates by rectum in a certain dose should have a greater action than the same amount by way of the mouth, as, after all, it is apparently a question of the amount of the drug absorbed and we know that salicylates are readily absorbed by the gastro-intestinal tract. I believe one explanation of the excellent results Dr. Heyn obtained was the fact that the doses he employed were relatively large, larger in fact than the ordinary dose administered by mouth, and if the absorption was complete by the rectum it would have the same effect as if the equivalent amount were given by mouth. His work shows that in those cases in which the drug is not tolerated by mouth, it can be well taken by way of the rectum. I differ somewhat from Dr. Heyn, that salicylates are a specific in rheumatism, as statistics show that patients treated by salicylates remain in the hospital quite as long as those receiving other forms of treatment for their arthritis.

Dr. J. N. Upshur, Richmond, Va.: In the discussion of this subject a few years ago in this Section, a number of speakers stated that their practice was to give large doses of salicylates, often as much as 300 grains in twenty-four hours, that endocarditis was a troublesome sequel, and they were at a loss to explain why. I said then practically what I repeat now. In the treatment of rheumatism, a good dose of a mercurial should be given at the start. The pronounced acidity of the sweat and urine is a conspicuous symptom, indicating the administration of alkalies until these excretions are neutral. My practice is to give, well diluted in water, potassium bicarbonate, 10 grains every two hours for forty-eight hours, following it with small doses (5 grains) of sodium salicylate every two hours for about two days. Relief is usually prompt. I never give more than a dram of salicylate in twenty-four hours, and rarely that much. I believe that large doses of salicylates predispose to the development of endocarditis, and the patient is much more liable to relapse, than if a foundation is laid by the exhibition of the mercurial, followed by the alkali. I desire to enter my protest against these excessive doses of the salicylates as being most harmful and dangerous.

Dr. J. M. Rector, Columbus, Ohio: I have used this method successfully by a more satisfactory and thorough method. The solution is introduced into the colon with a large rectal tube to the point of toleration; the irrigator is then disconnected from the rectal tube and the solution forced into the upper parts of the colon by introducing air behind the solution with the aid of the Politzer bulb; the Politzer bulb is then removed and the solution which was not carried out of the sigmoid permitted to flow out of the tube. More solution is then introduced and the Politzer bulb again used until the entire colon is moderately distended. This traps the solution and carries it higher with a more equal distribution along the tract, increasing the surface through which the drug may be absorbed. This procedure is painless and I have been able to get better results with smaller doses in greater dilution, and this method also assists in elimination and drainage of the entire alimentary canal and leaves the upper part of the tract undisturbed so that it may follow its normal digestive activities uninterrupted. The three advantages are: 1. It increases the resistance of the patient by not disturbing the digestive ability in the upper part of the alimentary canal. 2. It increases the elimination and relieves all tendency to absorption from a constipated colon. 3. It gives the direct introduction of salicylate of soda in large doses with all its beneficial effects and without the digestive disturbances which usually follow the use of this drug by mouth.

Dr. James Tyson, Philadelphia: In 1896 my attention was called to the efficiency of this mode of administration of the salicylates advised with a view to getting rid of the unpleasant gastric symptoms so often associated with the use of salicylates by mouth. Of late years, however, it has been found possible to refine the salicylates so as to get their effects without the disagreeable nausea. Aspirin, for instance, is a result of such refinement, does not disturb the stomach nearly so much and is equally efficient, rendering administrations by the rectum less essential.

Dr. Nathan Rosewater, Cleveland: When salicylates first began to be used in the New York Hospital, in 1878, I saw enormous doses given with remarkably good results compared to the older methods. Germ life, metabolic and other causes have been studied since then. Knowing that salicylic acid is a powerful inhibitor of fermentation, 1 grain being sufficient to preserve a pint of fruit-juice or other saccharine fluid, it occurred to me years ago that in proportion to the body-fluid such doses were entirely out of proportion, and the unnecessary and perhaps harmful effects far in excess of that required to inhibit germ life. I began at first to give 10 grains in chronic lithemic cases, before meals, when the stomach was practically empty—at least then the salicylate would not inhibit the action of the proteolytic and carbohydrate enzymes—and in acute cases and later in all cases to give only 15 to 20 grains at bedtime, three or more hours after supper. During the day I depended first on alkaline laxatives, such as citrates and tartrates to empty the gastro-intestinal canal, and on sodium iodid and other haloid salts to reduce the viscosity of the blood-stream and to relieve the heart of overtension, sparing it and aiming to avoid damage to this readily damaged organ. By elevating the lower extremities and even the upper ones, using gravitation to assist the venous return and sparing the cardiac mechanism, my results have been most satisfactory. For instance, in a very stout woman, aged 67, with all the joints of the lower extremities red, swollen, and very painful, temperature 102 F. and the digital extremities also swollen, I succeeded in having her on her feet in twelve days, without relapse. I have not given atophan, although my colleagues have been instructed to use it whenever salicylates should fail. The same is true of other preparations which I have kept on hand but have had no use for, although I use and have prescribed annually for many years, with this small dosage, approximately 100 pounds of sodium salicylate, not the natural, but the ordinary synthetic quality. I am glad to see that Hanzlik at Lakeside Hospital has corroborated the fact that the so-called natural salicylic acid has no advantages over the U. S. P. synthetic product. I have never seen ill effects except rarely when the stomach was not empty, the hydrochloric acid still present, liberating sufficient salicylic acid to irritate the gastric mucosa into distress or even to cause vomiting.

Dr. W. W. Tompkins, Charleston, W. Va.: Our duty in this class of cases does not consist in how few days our patients are in the hospital, or confined in their homes, but our chief object should be that, when our patients get out, they should be free from endocarditis and its unpleasant symptoms. The question each physician should ask himself is how efficient is the patient after an attack of acute rheumatism? The method and dose of administration of a medicine is but secondary. Few of us have such large experience as Dr. Miller when he treats 2,000 cases by one method and 1,600 by another. Each of us has an experience, it may be relatively small; but what is important is the percentage of actual recoveries. When cases respond so readily to remedies as reported by Dr. Heyn may it not be that we would in such cases take a too optimistic view and not safeguard our patients for a few days or weeks by rest and freedom from work or exercise? Is it a safe practice to permit a patient four or five days after his initial symptoms to leave his bed or the hospital and go about or resume his vocation? If the joints of the lower limbs are involved we get a forced rest because it is painful and impractical to get about, but if a wrist or elbow is involved our patients can go about and will do so if we do not restrain them or admonish them as to their danger. The reduction of fever and the allaying of pain should be aimed at, but the important point to keep in mind is the specter of a diseased heart with all its unpleasant sequels. Dr. Heyn mentions treating 124 cases by this method—quite a large number. Will

he please state how much lower his percentage of endocarditis is than we have by the method of administering the salicylates by the mouth. It is to the hospital clinician that we look for our statistics in these matters.

DR. LOUIS G. HEYN, Cincinnati: I desired to state in the paper the results, in general, of the therapy and to cite a few instances fairly illustrative of the response of a class of cases to a definite line of therapy. The proof of the methods suggested must rest on the observations of those who are quite impartial in their judgment of results obtained. Dr. Miller's discussion was enlightening to me. It may be that what he said is a strong argument against the bactericidal effect of the salicylates, for he injected various bacteria and then gave the salicylates with apparently no effect on the bacteria, which would tend to prove that the salicylates have no bactericidal effect. Salicylates have apparently never had any effect where there is evidence of a general bacteriemia as would be indicated by an endocarditis, and animal experimentation and clinical results are not always in accordance. The more I see of cases of acute rheumatic fever and the promptness with which this affection reacts to the salicylates the more I am inclined to believe that the drug must have some direct effect on the bacteria in this affection. I am quite in accord with the alkaline therapy with its frequently good results; it is also well known that many patients recover without any therapy, but there are few diseases causing such severe suffering as acute rheumatism, and most of us will at least seek the analgesic action of the salicylates. I must again answer the contention for the drug by mouth. Large doses by the mouth are possible and effectual in many cases, say from 20 to 30 grains five times a day, but this amount cannot be continued many days. The attack may be subdued within ten or twelve days; but not always, as Dr. Rosewater contends. On the other hand, one sees many cases prolonged weeks or months even in spite of the salicylate treatment. Someone has said that the salicylates predispose to cardiac affections. I have given it even in cases of marked cardiac arhythmia and have seen no untoward effects, so far as I could judge. Dr. Rector's suggestion that this method of administering the enema be modified by the use of the Politzer bag, instead of the Davidson syringe in our method, would seem feasible. As to Dr. Tyson's statement that there is no further need of the use of sodium salicylate since the introduction of the newer preparation, notably aspirin, I am not prepared to endorse his views, although this may be so. I am surprised to learn that Dr. Tyson had used intrarectal salicylate so many years ago, and had I known it I should have incorporated the fact in this paper. Relative to the number of cases of endocarditis following this method of treatment, I have seen only one case in which endocarditis developed during the attack. Occasionally an apparently cured patient with rheumatic fever has been discharged from the hospital and at the next observation some time later, we have found a valvular lesion. It is difficult to determine whether it is subsequent to the previous rheumatic attack or due to a mild infection in the interval between the rheumatism and the appearance of the valvular lesion.

The Production of Senna in the Sudan.—The senna exported from Egypt is gathered from shrubs growing wild in the Sudan and the Red Sea littoral of Arabia. The Sudan variety is the *Cassia acutifolia*, which furnishes what is known as *Cassia angustifolia*, which supplies the senna called Mecca, Arabian or Indian. Senna is gathered once a year, in October, the size and quality of the crop depending on the abundance of the rainfall. The leaves and fruit are allowed to dry on the branches. The product is classified in four grades as follows: whole leaves, half leaves, broken bits and fruit (bean). Suez is the collecting point for both Sudan and Mecca senna. Arabian statistics are not available, but during the year 1912 senna from the Sudan was exported to the value of nearly £10,000 ($50,000) and in the first half of 1913 to over £6,000 ($30,000).—*Jour. Roy. Soc. Arts*, June 10, 1914.

THE USE OF A SERIES OF VACCINES IN THE PROPHYLAXIS AND TREATMENT OF AN EPIDEMIC OF PERTUSSIS *

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Last December pertussis broke out in the main building of the Hebrew Infant Asylum, an institution which houses about 375 children, ranging in age from a few days to 6 years. It soon became evident that the disease was destined to assume considerable proportions, and that we were on the threshold of an epidemic. An occurrence of this nature offered an exceptional opportunity to make an extended test of the value of vaccination in this disease.

The study of an epidemic within the confines of an institution has marked advantages over the study of an equal number of cases selected from hospital or private practice. In the first place, it must be evident that the fact that an epidemic originates from a single source, that the cases are due, in all probablity, to infection with the same type of micro-organism, greatly simplifies the solution of the problem; it negatives the question of whether a difference in the severity of symptoms is due to a variation in virulence of the invading bacteria. In hospital or in private practice, on the other hand, the cases must always have originated from manifold sources. It is probably also of advantage, from the standpoint of comparison, that these institutional children belong to the same stratum of society, that they have for the most part been reared for a considerable period within the same walls, having the same daily routine, including similar food and an equal amount of outdoor life. These are some of the conditions which are insisted on in considering the course of experimental infection among laboratory animals, but which can rarely be controlled in a study of infection in man.

Many of the hospital studies of the treatment of pertussis are, however, open to the severer criticism, that owing to the poorly defined onset of this disease there is no means of knowing how long the children were ill in their homes. This fact is naturally of great importance in considering the success of treatment. All these objections can likewise be raised in regard to cases treated in the dispensary or in ambulatory practice; in addition, this type of case is open to the criticism that one must rely solely on the opinion of ignorant parents in judging the efficacy of the treatment.

PROPHYLACTIC USE OF VACCINE

We shall first consider pertussis vaccine in its prophylactic use. Here a field of exceptional promise presented itself. Two hundred and forty-four patients were inoculated with four different vaccines. Vaccine 1 consisted of a typical strain of the Bordet-Gengou bacillus obtained from Parke, Davis & Co., and two atypical strains. Vaccine 2 was "Bacterin" (Parke, Davis & Co.), which is stated to be composed of a pure culture of the bacillus of pertussis. Vaccine 3 was prepared from four typical cultures of the Bordet-Gengou bacillus isolated by Dr. Anna Williams of this laboratory. Vaccine 5 may be termed an autog-

* From the Research Laboratory, Department of Health, New York City.
* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

enous vaccine in the sense that it was composed of three typical Bordet-Gengou strains isolated from cases included in this epidemic. Table 1 shows the results of the vaccinations. It may be summarized by the statement that *twenty of the 244 cases developed pertussis in spite of the prophylactic inoculations.*

TABLE 1.—PROPHYLACTIC VACCINATIONS (244 CASES)

Vaccine	No. of Inoculations	No. Treated	Pertussis
1	2	35	10
2	3	10	1
3	3	141	6
5	3	58	3
		244	20

Let us examine this table somewhat more closely. It will be seen that Vaccine 1 shows by far the greatest number of failures. Two injections of the vaccine were given in each instance, one of 100 millions, the other of 200 million bacteria. Of the ten cases which developed pertussis, five showed the first symptoms two or three weeks after the first inoculation, one after twenty-five days, one after six weeks, two after an interval of two months or more. In considering the results of prophylactic inoculations, all cases were discarded and not included in the tabulation (Table 2) which shows the development of symptoms of pertussis within two weeks of inoculation.

TABLE 2.—DETAILS OF THE TWENTY CASES DEVELOPING PERTUSSIS NOTWITHSTANDING PROPHYLACTIC VACCINATION

Name	Date Vaccinated	Type of Vaccine	Date of Onset of Pertussis	Severity of Disease
D. F.	1/12	1	3/ 5	+++
A. A.	1/12	1	1/30	+++
L. W.	1/12	1	1/26	+
B. A.	1/12	1	1/26	+
*A. S.	1/13	1	3/14	+++
N. K.	1/13	1	1/29	+
M. G.	1/13	1	3/14	+
I. W.	1/ 8	1	2/ 2	+
L. R.	1/13	1	1/29	+++
D. D.	1/13	1	4/ 1	++
A. H.	2/20	3	3/10	++
B. B.	4/17	3	5/ 6	+++
Y. G.	4/17	3	5/20	++
G. H.	4/24	3	5/ 8	++
R. T.	4/17	3	5/13	++
*A. S.	2/23	3	3/14	+++
F. S.	3/14	3	6/ 1	++
H. A.	4/14	5	5/24	+
J. B.	4/14	5	5/ 5	++
L. C.	4/14	5	5/12	+

* Received two varieties of vaccine.

When we turn to Vaccine 2 we find rather too small a number of cases to allow of a satisfactory estimate of its worth. Inoculations of 100, 200, and 400 millions were made at three-day intervals. The one case which developed pertussis showed symptoms two and one-half weeks after the first inoculation. It should be mentioned in this connection that five of the cases of this group developed ring-worm and were therefore sent away from the institution. As a result, the period of exposure to infection by pertussis was shortened in these cases.

The results obtained with Vaccine 3 are particularly interesting, as they are so much better than those obtained with the other vaccines. The same doses were given as of Vaccine 2, and with the same intervals. In twenty-four of this group of 141 cases, large doses were given by mistake, namely, 500, 1,000, 2,000 millions. One of these children nevertheless developed pertussis. This case (A. S., Table 2) is of especial interest in that the child received two prophylactic doses of Vaccine 1 about the middle of January, and three very large doses of Vaccine 3 towards the end of February, and notwithstanding this treatment came down with pertussis on March 14; the disease was exceptionally severe, whooping being continued for a period of ten weeks. The other cases, five in all, developed pertussis three weeks, six weeks, one month, and one about two months following inoculation.

As the result of prophylactic vaccination with these three vaccines it was determined to make a vaccine from cultures obtained from cases in our wards. Dr. Anna Williams was kind enough to prepare a vaccine of this nature as well as to make cultures from the throats of many of the children. It should be emphasized that the typical Bordet-Gengou organisms could be isolated in only five cases out of the thirty cultures taken. In most instances other hemophilic bacilli, frequently the influenza bacillus, were isolated. It may therefore be maintained with some justice that in our cases the symptoms may not in all instances have been incited by the Bordet-Gengou bacillus, and that this accounts for the failures in the use of Vaccine 5. It will be noted that of the 58 cases inoculated with this vaccine three developed pertussis. All these children received 100, 200, and 400 million bacteria. Two of the number began to whoop about one month after vaccination, and one three weeks following the initial injection.

One hundred and thirty children did not receive prophylactic inoculations. This group included a ward of twenty-five infants under the age of 1 year, and another ward of about thirty infants between the ages of 12 and 18 months. These children must be considered separately, as they were at all times in bed, so that the danger of contact infection naturally was far less than in the case of runabout children. Moreover, in the one ward comprising thirty infants, no case of pertussis developed, so that they were not subjected to infection and therefore should not be included among those exposed to pertussis. Only one case of pertussis occurred among the twenty-five infants under 1 year of age. That this case did not lead to further infection shows the difficulties in judging of the results of prophylactic treatment. However, the fact that these infants did not come into close contact, that they were at all times in bed, should of itself exclude them from consideration. It would be a palpable error to compare infection in an infants' ward with that occurring in a ward of older children. This distinction should always be borne in mind in considering the degree of infection in institutions for children. If therefore we subtract these fifty-five cases—the thirty where no infection occurred and where consequently no exposure existed, and the twenty-five where exposure was greatly limited by absolute confinement to bed—we have eighty children who were not vaccinated. Of these eighty, fifty-nine developed pertussis. It will be remembered that of the 244 vaccinated cases, twenty came down with pertussis. There were five cases which cannot be included in the group of either the vaccinated or of the unvaccinated, as they began to whoop within a fortnight of vaccination; the case in the infants' ward constitutes a sixth case which cannot be considered.

It is difficult to determine the degree of exposure of the various children. No doubt it is true that at the very beginning of the epidemic, isolation was less complete and exposure to infection accordingly greater. This period, the early days of the epidemic, corresponds to the time preceding our employment of vaccine. However, granting a certain increased exposure of the unvaccinated at this period, we feel that the disparity in the ratio between the infected and the

non-infected is so marked among those vaccinated and those unvaccinated—among the former twenty out of 244, or one in twelve, among the latter fifty-nine out of eighty, or almost three out of four—that vaccination must have played a rôle. It should be mentioned in this connection that with the exception of the infants' ward, pertussis occurred in every ward in the building, and that quarantine regulations were enforced in the cases of children with suspicious cough or actually manifesting symptoms of the disease.

TABLE 3.—DISTRIBUTION OF EPIDEMIC ACCORDING TO WARDS AND MONTHS

Ward	Dec.	Jan.	Feb.	March	April	May	June	Total
I	..	..	..	..	1	..	..	1
II	..	..	..	..	..	..	..	0
III	..	2	3	3	2	..	..	10
IV	*1	11	4	3	2	1	..	25
V	1	2	6	3	..	1	..	13
VI	..	..	..	1	..	..	..	1
VII	..	..	..	..	3	2	..	5
VIII	..	..	..	..	..	1	1	2
X	1	2	..	1	..	..	..	4
XI	1	3	1	5	..	..	..	10
XII	..	4	2	1	1	..	..	8
XIII	..	2	1	2	1	..	..	6
Total	4	29	17	19	10	5	1	85

* First case.

Table 3 shows the development of the cases both according to wards and according to months. It will be noted that in April the number of cases began to diminish. This time corresponds to the period of vaccination. In brief, vaccination was undertaken as follows: The 35 cases were inoculated with Vaccine 1 about the middle of January, and the ten cases with Vaccine 2 about the middle of February. At the very end of March and the beginning of April the large group of 135 cases were treated with Vaccine 3. In other words, prophylactic treatment on a large scale did not exist until the middle or end of April. This date corresponds with the beginning of the cessation of the epidemic. The epidemic may have been waning of its own accord; however, at this time, there was no abatement of pertussis throughout the city. We are therefore of the opinion that the vaccine was of value in preventing infection and in limiting this epidemic, but that it cannot be relied on in each individual case as a prophylactic measure. It would seem probable that there is considerable difference in the potency of various vaccines, and, following the deductions to be drawn from our results, that a polyvalent vaccine of typical Bordet-Gengou bacilli is most efficacious.

ACTIVE TREATMENT

Vaccines were also used in this epidemic in the active treatment of pertussis. As in prophylaxis, four vaccines were employed; however, one of these (No. 2) was not the "Bacterin" mentioned above but the "combined vaccine" of Parke, Davis & Co., which is composed of the Bordet-Gengou bacillus, influenza bacillus, various hemophilic bacilli, streptococci, etc. Of the eighty-five cases of pertussis constituting the epidemic, sixty-five were treated by means of vaccines, and twenty were not vaccinated. No other treatment whatsoever was given to either group of patients. About an equal number of children were treated with each of the four varieties of vaccine; the cases were not selected, a change in the type of the vaccine being instituted whenever about fifteen children had been vaccinated. In some cases two vaccines were made use of just as with the prophylactic treatment.

Table 4 seems of especial interest in judging of the efficacy of the vaccine treatment. This table, it will be noted, is composed of the twenty severest cases of the epidemic. In compiling this list, we had recourse to the ward charts which showed the number of paroxysms of coughing and attacks of vomiting which each child had by day and by night, and were guided also by the opinion of the resident physician and of the head nurses. After the twenty cases had been selected in this way, a table was constructed to demonstrate their relationship to vaccination. It will be seen that of the total number only two received no vaccine treatment whatsoever. Five received both prophylactic inoculations and active treatment during the course of the disease; five were inoculated with two varieties of vaccine. This list, which is essentially a list of therapeutic failures, contains representatives of all four vaccines, but it will be noted that, as in the case of prophylactic vaccination, Vaccine 1 makes the poorest showing. It would seem that this table requires little comment. It clearly demonstrates that the use of vaccines in this epidemic did not lessen the severity of the disease. We should add that pertussis in New York City as well as in our institution was characterized this year by its mildness. Indeed, we did not experience any fatality and but two cases of pneumonia. In an epidemic of this nature it would evidently be less valuable to judge the results of treatment by considering the number of mild cases, than by noting those of exceptional severity. This is all the more pertinent in a disease having the irregular symptomatology of pertussis, where mild cases can be differentiated with difficulty from the common cough of non-specific origin. In the tabulated cases it cannot be contended that treatment was not begun sufficiently early, as the first vaccination was in almost every instance administered during the first week of the disease. This is as early as we can hope to be able to employ vaccines in the course of any disease. Moreover, a glance at Table 2 (composed of cases which developed pertussis notwithstanding prophylactic inoculation) shows that where these early inoculations failed to ward off the disease, its severity was not mitigated; that in numerous instances not only did the vaccine fail to prevent infection, but that it did not shorten or mollify the course of the illness. In no instance, however, did any harmful local or systemic reaction follow the injection of vaccine. In this connection we may add that all attempts to employ the vaccines for diagnostic purposes proved futile, whether as a cutaneous, intracutaneous or subcutaneous test.

TABLE 4.—VACCINATION IN RELATION TO THE TWENTY SEVEREST CASES

Case	Vaccine Prophylactic	Vaccine Curative	Case	Vaccine Prophylactic	Vaccine Curative
1	0	0	11	0	1
2	0	2	12	1	1
3	0	1 and 2	13	0	5
4	0	1 and 2	14	0	5
5	1	1 and 2	15	0	3
6	0	1 and 2	16	0	3
7	0	1	17	1	3
8	0	2	18	1 and 3	0
9	0	0	19	0	1
10	0	1	20	3	0

The complement-fixation test of the serum was carried out on ten cases, using the Bordet-Gengou bacillus as antigen. These tests were made by Miss Olmstead of this laboratory, whom I wish to thank in this connection. The number of cases is far too few to allow of a statement of the value of this reaction in pertussis. In general, however, the results would seem to show that this reaction is present for some

months after the cessation of all symptoms. Its chief interest is in connection with the still mooted question of the specificity of the Bordet-Gengou bacillus. It is for this reason that the cases are appended in a table (Table 5).

TABLE 5.—COMPLEMENT FIXATION TESTS

Name	Date of Onset	Type of Vaccine	Date Vaccinated	Severity of Disease	Fixation Test, June	Bordet-Gengou Bacillus
F. G....	3/ 4/14	3	3/10/14	+++	+++	+
G. S....	3/22/14	3	3/10/14	+++	+++	+
E. S....	2/ 4/14	2	2/25/14	+++	±	+
D. F....	3/ 5/14	1 and 3	1/12/14	+++	±	+
			3/20/14			
A. V.*...	5/15/14	3	2/ 5/14	+	±	—
G. H....	5/ 8/14	3	3/24/14	++	+++	—
P. B....	4/20/14	3	4/14/14	++	+	—
L. F.*...	5/15/14	3	4/14/14	+	±	—
H. B....	4/22/14	3	4/17/14	++	++	—
C. C....	3/ 9/14	3	3/ 9/14	+++	+++	—

* Pertussis doubtful.

CONCLUSIONS

We have reported on the use of a series of vaccines in an epidemic of pertussis occurring in an institution for young children. An occasion of this nature furnishes exceptional opportunity to observe this disease, which is characterized by an indefinite onset and an irregular course, and is furthermore rarely adaptive to hospital study.

What deductions are to be drawn from the observations which we have recorded? It would seem clear that none of the four vaccines, including an autogenous strain, was of value in curing or tempering the disease in the epidemic which existed in our institution. That this failure was not due to tardy inoculations is emphasized by the circumstance that many of the severest cases received not only early active treatment but also prophylactic vaccination. No other conclusion seems possible from a review of the epidemic of 85 cases, and a comparison of the severity of the disease among the vaccinated and the unvaccinated. This opinion is based solely on our experience in this epidemic and does not preclude the possibility that a different dosage of vaccine, or treatment with a modified vaccine, may not prove to possess curative properties.

The use of the vaccines in prophylaxis seemed by analogy to offer greater promise, in view of the established fact that other vaccines, for example the typhoid vaccine, possess prophylactic although no curative power. This seems to some extent, although to a far less degree, to be true of pertussis vaccine. In view of the fact that twenty children developed pertussis in spite of the prophylactic treatment, we cannot compare its protective value to that of typhoid vaccine. However, the proportion of unvaccinated children who developed pertussis so greatly exceeded the number of the vaccinated who developed the disease, that we conclude that the vaccine has protective value in a certain percentage of cases, and that it should be employed in institutions and in families to prevent the spread of this infection.

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ABSTRACT OF DISCUSSION

Dr. John Zahorsky, St. Louis: About two years ago I reported a series of forty cases of pertussis treated by vaccine in private practice. Dr. Hess has spoken of the Infants' Asylum children as being ideal for treatment. There is one objection to that; infants in asylums have much less immunizing power in themselves. They do not resist infection so well as children in families. Their response is much slower, and I do not think we can get as good results as in private practice. I am glad to hear that the effect of the prophylactic injection was so marked. I was still in doubt as to whether we could expect a prophylactic injection to prevent whooping-cough. Bordet has shown how very difficult it is to immunize against this infection. There are some children who do become immunized to their own infection rather quickly. Others have great difficulty in becoming immune. There is a certain group of cases, those in children who have good health in every way, children who rapidly respond to infection, in which vaccines are of curative value. I think I have clearly shown that in about half the number of cases, if one, two or three injections are given at the height of the disease, thereafter the disease becomes much milder; not necessarily shorter, because after all it takes time to become immune to the pertussis bacillus. I used the vaccine last winter in fifty cases. Again and again we get such nice results from its use that it should be added to our stock of therapeutic aids in whooping-cough.

Dr. T. C. McCleave, Berkeley, Cal.: I have had a limited experience in the use of pertussis vaccine; yet it has taught me clearly that Dr. Hess is right. I have not been able to persuade myself that the vaccine was of the slightest curative value. Some of the mothers have thought so, but I was not able to corroborate their opinion. In a little epidemic at home I have had opportunity to use it in a number of families. I have vaccinated all of the children, the sick ones for curative and the well ones for prophylactic purposes. It was my experience that all of these children who were prophylactically treated and yet remained in association with the children with whooping-cough, failed to take the disease. That is, the prophylactic treatments were 100 per cent. effective, in only six or eight cases, it is true. I think the method is of value, and should unquestionably be used. This treatment is interesting to me as a private practitioner, and I believe it would be peculiarly valuable when I have particularly good control of my patients, because in the case of children continuously under my observation I intend to revaccinate from time to time and hope to prevent them having whooping-cough during their childhood. I hope to be able to determine the duration of immunity from pertussis vaccine by a method similar to the von Pirquet method for tuberculosis and the Gay skin-test for typhoid. Possibly next year I will have some information. I merely mention it as of interest. We may be able in children under our control at least to greatly reduce the susceptibility.

Dr. S. M. Hamil, Philadelphia: I have not used vaccines in the treatment of whooping-cough. A few years ago I made a complete study of the literature of pertussis, and I discovered at least 100 specific drugs recommended for the treatment of this disease. Quite interesting was the fact that some of these remedies were advocated by men of undoubted standing. Series of cases were reported in which the results were directly attributed to these various drugs. I remember, for instance, that Moncorvo reported glowing results in a series of cases from the direct application of aristol. Later he reported on it unfavorably. Where are those specific remedies now? Entirely forgotten. Why were they recommended by able men? Merely because it is so hard to determine the results of treatment in pertussis. An untreated case of great severity may suddenly develop sufficient immunity to change the entire nature of the case, even to the extent of producing a so-called abortive attack. The effect of drugs in such a case can only be misinterpreted. Therefore, we should interpret the results of vaccine treatment very cautiously. We should remember also that its application is painful, that vaccines are expensive and not free from danger. I have known of a number of instances in which alarming symptoms have followed their use. There is just as much evidence against the value of vaccines as there is in their favor.

Dr. D. L. Richardson, Providence, R. I.: This subject is very important, particularly from the point of public health. Will Dr. Hess explain whether in the class of cases in which he used vaccines they were infants or small children that were in bed? Were they put to bed in the attempt to control the disease, and in the non-immunized class were they older chil-

dren in which the question of personal contact was greater? That would bear materially on his results. Perhaps I did not clearly understand. If this vaccine does immunize, it will be of great value in the future in controlling the disease. The development is so insidious that the damage is done much as in measles, but in a more subtle manner.

DR. KATE C. MEADE, Middletown, Conn.: We have just had two epidemics—one of whooping-cough and one of smallpox. We had a severe epidemic among the children of the well-to-do. Having heard of the results of this treatment from a friend in St. Louis, I asked Dr. Fisher to make me some autogenous vaccine for pertussis. The first vaccine made I think was weak. I tried it on twelve children. In many families the mothers were intelligent and able to interpret conditions. In each case it has been the oldest child who has brought the disease into the family—the child who has been in school. That child I never gave vaccine to, but immediately began on the small children. In one case I began with 150,000. I gave the vaccine in one case every day for three days, in another case each day for two days. In one case in which I knew a baby was coming into a home, and I thought it would be rather difficult to give a new baby vaccine, I gave a litle boy six doses altogether, and no other medicine. In every one of these cases the disease was stopped within eight or ten days. A little cough was left, but no whooping and no vomiting or spasmodic attacks. The older children continued to cough, but did not reinfect the smaller children. The new baby came and did not take the whooping-cough. We have been using Dr. Fisher's vaccines a great deal—mostly autogenous. I think she has great skill in preparing them. In several children we used a combination of our vaccine and a stock coryza vaccine. My twelfth case was a man, aged 76, who had typical pertussis and pneumonia. I was interested, when visiting the New York laboratory, to find they are having difficulty in separating some of their strains from that of pneumonia. In the case of this man, I gave him an autogenous strain of his own pneumococcus. He recovered remarkably, both from the pneumonia and the pertussis.

DR. EDWARD S. REIMER, New York: Will Dr. Hess say at what stage in these various cases treatment was instituted? In my own limited experience, by starting in early we get better control of the cases, and much better results.

DR. FRANK W. PINNEO, Newark, N. J.: Dr. Meade's case in a man of 76, reminds me of an old lady who contracted whooping-cough last summer from a little child. While I ardently believe in vaccines, I did not use any in her case. Perhaps it was wise, because she contracted pneumonia and became very ill, but finally made a perfect recovery. We need greater knowledge about vaccines before laying down rules for their therapeutic use, and in institutions such opportunities as Dr. Hess has embraced are offered, while for private practice we may await further knowledge.

DR. HENRY HEIMAN, New York: It is extremely difficult to differentiate between true pertussis and those cases of bronchopneumonia of influenzal origin with a distinct pseudopertussis cough. In these latter cases it is extremely difficult for little children to expectorate this sticky material from the smaller bronchi. We have to be very careful in making a differential diagnosis.

DR. HARRY LOWENBURG, Philadelphia: I think Dr. Hess has not entirely proved his case. It is a remarkable thing that prophylactic cases should be so good and results with treatment should be so poor, especially in cases in which tremendous doses are given. It does not seem likely that a remedy that would prevent would not also cure. Will Dr. Hess state just what the amount of contact was in these cases that did not develop? That these children did not develop a cough was no proof that the vaccine was effective. I should like to know whether opportunity for contagion was very great.

DR. ALFRED F. HESS, New York: Dr. Zahorsky spoke about the deficient immunizing power of children in institutions. I do not think that has ever been proved. That they are more susceptible to infection is true. If you take 100 persons in the almshouse, however, and immunize against typhoid, they will be immunized as thoroughly as 100 private persons. Children in institutions form antibodies, and they can be immunized just as well as children outside of institutions. With regard to a skin reaction with the vaccine, I may say that I tried it, but had no success. There was an unreliable local reaction, but no general reaction. I did say —perhaps I did not make myself clear—that I excluded from consideration all patients confined to bed. All the cases cited were ambulatory. There were two wards of infants in bed. One was a ward with twenty-five children in which there was one case of pertussis. It did not spread because there was no contact. The other was a ward with thirty children between 12 and 18 months old. As there were no cases in that ward, and no exposure to infection, they were excluded. The entire report is of children between the ages of 2 and 6, all runabouts. This answers the question raised by Dr. Lowenburg as to the danger of exposure. Whooping-cough occurred in every ward except the one which I mentioned, although the degree of exposure may have been somewhat different. Nevertheless, so far as we can tell, there was exposure in every ward. The vaccine was given in the early stages—as soon as a child was reported to have whooped, vaccine was given. I do not believe it can be given earlier than in an infant asylum where there is a resident physician. Dr. Heiman has raised the question of influenzal infection. Influenza was found by culture in our laboratory in a large number of these cases. The Bordet bacillus was also found. With regard to curative and prophylactic results I do not believe this prophylactic result is especially brilliant. It failed in 10 per cent. of cases. The result is not nearly so good as with some other vaccines. For instance, typhoid vaccination would be considered poor in results with 10 per cent. of failures. Compared to results in those not vaccinated, however, it is very good. It is very much easier to prevent a disease than to cure it after a considerable infection has occurred.

A NOTE ON THE PREPARATION OF BACTERIAL VACCINES *

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The work of Vaughan, his associates and others interested in protein poisons has established the relationship of these substances to local and general anaphylactic reactions. Some of the reactions following the injection of bacterial vaccines are undoubtedly due to extraneous medium proteins which have not been removed from the bacterial suspensions in the prevalent process of manufacture.

Since in the preparation of bacterial vaccines we are concerned only with the immunizing properties of the cellular proteins, it should be our aim to reduce, so far as possible, the amount of extraneous proteins in the method employed. Most of the commonly employed mediums used for the growth of bacteria contain protein substances. When the bacterial growth is washed or scraped from the surface of an agar-slant, or separated by centrifugation from a bouillon culture, the soluble excretory products of the bacteria, as well as soluble medium products are present in considerable amounts. If such suspensions in salt solution are standardized and used as vaccines, the local and general reaction which follows is apt to be relatively severe, depending on how much extraneous protein happens to be present, and on how soon after preparation the product is injected.

* Read before American Association of Immunologists, Atlantic City, N. J., June 21, 1914.

Since the suggestion was made to me by Dr. Carl C. Warden, who at the time was working with gonococcic vaccines, I have thoroughly washed all bacterial suspensions used in the preparation of vaccines, in the high-speed centrifuge, until the supernatant salt solution (0.45 per cent.) no longer gave a biuret test. The ninhydrin reaction has not been used because of its greater expense. Two or three such washings in the centrifuge will usually suffice to remove most of the extraneous protein. The vaccines so prepared I have called "washed vaccines," since such suspensions are practically free from all unnecessary and undesirable proteins. Washed vaccines possess the cellular elements necessary to immunization, but are free from those proteins which, in many preparations, have been responsible for relatively severe local and general reactions. Washed vaccines are much more suitable for intravenous administration.

Such washing is applicable in the preparation of all bacterial suspensions for vaccine purposes, with the exception of such fragile organisms as the pneumococcus and the gonococcus, the ordinary strains of which autolyze rapidly. Recent work by Sobernheim, by Seligmann and by Warden with more stable mutation forms of organisms offers the hope that less autolysis will take place on thorough washing and that these mutation suspensions may be handled in a manner similar to the suspensions of the more stable organisms.

For purpose of standardization, a suspension of the living, rather than dead, washed organisms is employed. The following method, which is preferable to the blood-cell-slide method of Wright because of greater accuracy, was suggested some years ago by Dr. L. H. Spooner of Boston, and has been used by me as a routine procedure with satisfaction: A small amount of the suspension is drawn into an ordinary erythrocyte mixing pipet, diluting 1:100 with a fairly deep-colored, thoroughly filtered, aqueous carbolthionin stain (the phenol (carbolic acid) content is 0.5 per cent.). The suspension in the counter is well shaken to secure even distribution of cells and a small drop placed on the shallow blood-platelet counting chamber of Helber-Zeiss. The organisms in twenty-five small fields are counted, and the sum divided by 25 to obtain unit value. The number so obtained is multiplied by the dilution 100, by 50 the depth of the chamber, by 400 the number of small squares per cubic millimeter and lastly by 1,000 to convert to cubic centimeters. For example, if forty bacterial cells are counted in twenty-five small squares, the unit value per square would be 1.6, multiplied by 100, by 50, by 400 and by 1,000 or 3,200 millions per cubic centimeter of suspension.

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Observation Must Precede Inference.—Take a group of students who are working at physical diagnosis and it is a constant struggle to keep them making observations and not giving inferences—usually from insufficient observation, if from any at all. No pains are too great to hammer home into the mind of every student the importance of keeping these two processes separate and not taking up the second until the first is as complete as he can make it. It is just as important for the practitioner as for the student, except that in the latter we are trying to form correct habits; the practitioner should have them.—Thomas McCrae, M.D., in the *Canadian Med. Assn. Jour.*

CANCER OF THE PROSTATE *

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The facts that the general subject of cancer presents even to-day one of our most serious and unsolved problems; that cancer of the prostate is a comparatively frequent and exceedingly distressful form of the disease; and the probability that by a more widespread application of the present available knowledge of this pathologic process the prevalent high percentage of disability and death would be considerably diminished, are advanced as sufficient reason for presenting a discussion of the subject with a contribution of data to the fund of experience.

The pathogenesis of cancer of the prostate is still a debatable question; the frequency of its occurrence, the usual sites of its original focus, its mode of extension and metastasis, are phases of the subject which are reasonably supported by facts.

This paper is based, first, on the examination of a series of 716 prostatic specimens removed at operation in the Mayo Clinic from Oct. 28, 1904, to June 1, 1914; secondly, on the pathogenesis of epithelial tumors of the breast, as view by MacCarty; and thirdly, on a review of the literature.

PATHOGENESIS

The opinions of various investigators with regard to the pathogenesis of cancer of the prostate are not uniform. The cause of this lack of uniformity seems to be due, at least in a great measure, to the different points of view from which the pathologic process is viewed.

Some authors maintain that cancer does not begin in a hypertrophic portion of the gland, that its presence here is an invasion from a focus situated elsewhere in the organ, usually in the posterior lobe. Others state that cancer occurs as an almost imperceptible transition from a benign adenoma. Still others, disregarding as unessential the consideration whether the associated process be one of general hypertrophy, adenoma or other pathologic condition, view, apart from its causation, the pathogenesis of prostatic cancer, likewise of cancer in general, as fundamentally a question of the histogenesis of epithelial cells.

A summation of the evidence adduced from the various investigations emphasizes the fact that cancer occurs in the atrophic, the apparently normal and the hypertrophic prostate. In the light of this accepted fact is seen an indication that involved in the development of the cancerous process there is a study far more basic than what is comprehended in a consideration of associated pathologic conditions. Again, the weight of evidence seems to prove that the disease begins most frequently in the posterior lobe of the gland. This seeming selectiveness of the process, however, is no more explicable in the prostate than are similar phenomena in other organs. The incident of original focus is aside from the underlying principle of pathogenesis, as advanced in the theory of the histogenesis of epithelial tissue.

* From the Mayo Clinic.

* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of some of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

CANCER OF THE BREAST

In 1898 Albarran and Hallé,[1] in an oft quoted and adversely criticized treatise under the caption, "Hypertrophy and Epithelial Neoplasms of the Prostate," direct attention to the "remarkable *analogy between the hypertrophied prostatic gland and the mammary gland* affected with benign tumors, or with those epithelial and interstitial lesions, which are still wrongly classified among the benign neoplasms and the chronic inflammations."

In 1907, Ewing,[2] discussing "Cancer Problems," stated that "inflammatory hyperplasia passes by insensible gradations into neoplastic growths."

During the past five years, MacCarty[3] has contributed several papers to the subject of cancer of the breast. This author was stimulated to undertake an extensive investigation of the epithelial growths of the mammary gland because of inability to harmonize his daily observations with the prevalent views of the pathogenesis of these tumors and the apparently redundant, diverse and unintelligible classification of the pathologic processes.

Fig. 1.—Breast; acinus showing primary epithelial hyperplasia (MacCarty).

At the beginning of this work the hypothesis was formulated, that the cells of cancer are the direct offspring of cells normally present in the acinus of the breast, and that they are derived neither from the differentiated cells through metaplasia, nor from prenatal or postnatal rests, according to the views attributed to Cohnheim and Ribbert. The investigation has been pursued on the foundation constructed by authoritative embryologists; personal speculation has been scrupulously avoided and notes of conditions have been confined strictly to the morphologic evidence presented by epithelial tissue under the microscope.

At the present period of this long investigation, MacCarty states that his earlier observations have been confirmed, and that his view of the origin of cancerous cells in the breast is no longer a hypothesis, but a demonstrable fact.

1. Albarran and Hallé: Ann. des mal. des org. génito-urin., 1898, p. 797.
2. Ewing: Harvey Lectures, Nov. 16, 1907.
3. MacCarty: Tr. of Surg. and Gynec. Assn., 1910; Surg., Gynec. and Obst., October, 1913, p. 441, Surg., Gynec. and Obst., March, 1914, p. 284.

With the purpose of endeavoring to determine an analogy between the pathogenesis of cancer of the mammary gland, as advanced by MacCarty, and the pathogenesis of cancer of the prostate, I undertook the examination of this series of prostatic specimens.

A brief summary of MacCarty's investigation of epithelial growths of the breast follows:

Fig. 2.—Breast; acinus showing secondary epithelial hyperplasia (absence of inner row of cells and hyperplasia of outer row of cells in lumen [MacCarty]).

The normal acinus of the mammary gland is lined with a single row of cylindrical epithelial cells, which are the differentiated, functional cells of the organ. These differentiated cells arise from the stratum germinativum, which is usually undiscernible until some stimulus causing hyperplasia is present. Then the germinative layer appears in the acinus as a second row of cells which adjoins immediately the surrounding stroma. For descriptive purposes these cells are termed the outer row and are described as the undifferentiated or partially differentiated precursors of the

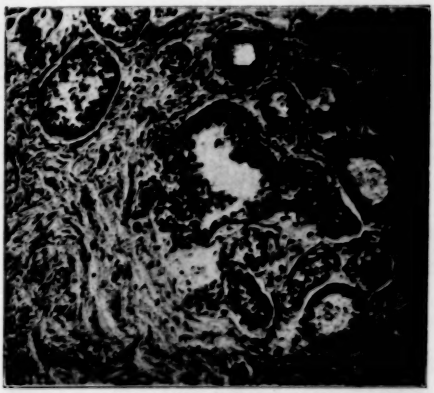

Fig. 3.—Breast; acini showing secondary hyperplasia and confusion of line of demarcation between acinus and stroma (MacCarty).

specific functional cells. The morphologic appearance of these cells of the outer row differs from that of the differentiated cells, which now form and are termed the inner row. In the presence of an excessive or abnormal stimulus the cells of the outer row become

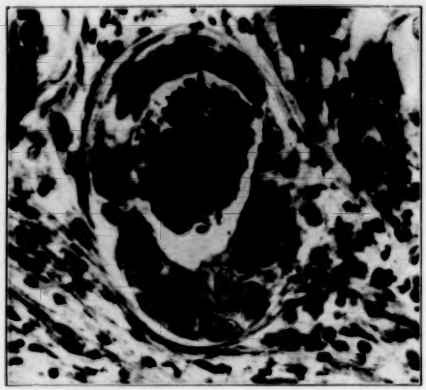

Fig. 5.—Breast; acinus showing secondary epithelial hyperplasia with irregularity of nuclei (MacCarty).

hyperplastic and partially or completely fill the acinus. In this event, the functional cells are present, exfoliated or absent. Furthermore, the undifferentiated cells are observed not only intra-acinic, but also extra-acinic, situated in the stroma. Therefore, some microscopic fields present both rows of cells, differentiated and undifferentiated, distinct in the acinus; other fields

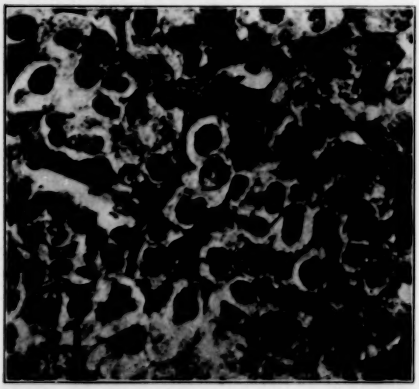

Fig. 6.—Breast; tertiary epithelial hyperplasia, showing irregularities of nuclei—cancer (MacCarty).

show a definite predominance of intra-acinic, hyperplastic undifferentiated cells; and in still others, both intra-acinic and extra-acinic hyperplastic undifferentiated cells are seen. In some fields in which the inner row of functional cells are exfoliated or absent, and the undifferentiated cells of the outer row hyperplastic, the line of demarcation between the acinus and the stroma is observed obliterated, totally or in part, and the latter cells are noted also in the stroma. The facts that epithelial invasion of stroma is the accepted histologic picture of cancer; that in these observations the epithelial cells in the stroma are morphologically indistinguishable from the hyperplastic undifferentiated cells of the acinic outer row; and finally, that the latter cells represent the normal precursors of the functional cells in the stratum germinativum, seem to lead logically to the deduction that *the cancerous cells of the mammary gland are the direct, immediate descendants of the undifferentiated cells of the germinative layer,* consequently, that the hypothesis of "embryonic rests" is not essential for the explanation of cancer in this organ.

For the sake of simplicity in studying the mammary epithelial tumors, the following classification is based on the observations cited above: The pathologic processes involved in these epithelial growths are designated, (1) primary hyperplasia; (2) secondary hyperplasia; (3) tertiary or migratory hyperplasia. In pri-

Fig. 7.—Normal prostatic epithelium.

mary hyperplasia, both rows of cells, the inner, differentiated, and the outer, undifferentiated, are present and concerned in the reaction; in secondary hyperplasia, the outer row, undifferentiated cells, are excessively proliferated (cancer?); in tertiary hyperplasia, the hyperplastic undifferentiated cells of the outer row are also present in the stroma (cancer).

The probability is advanced that, viewed in the light of these studies, the old criterion for determining cancer histologically, namely, the permeation of the "basement membrane," may be erroneous, consequently, that we may be compelled to view the condition of secondary hyperplasia as possibly malignant before invasion of tissue has occurred.

CANCER OF THE PROSTATE

In examining the prostatic specimens of this series for the purpose of seeking an analogy between the cancerous process in this gland and that noted by MacCarty in the breast, the following observations have been made:

The normal acinus of the prostate is lined with a single or an imperfect double layer of columnar epi-

thelial cells. These are the differentiated or specific functional cells of the gland. In the examination of the pathologic specimens, these functional cells are seen frequently in a state of excessive proliferation, forming projections in and bridges across the acini. There is observed also partial or complete exfoliation of the same cells with the formation of cysts, which are empty or contain accumulations of the cells in varying degrees of degeneration. Some fields are noted in which the acini present not only the proliferated functional cells, but also, outside these and immediately adjoining the stroma, another row of cells, which are morphologically dissimilar to the inner row of differentiated cells. Other fields contain acini with functional cells present, exfoliated or absent, and the lumina partially or completely filled with the hyperplastic undifferentiated cells of the outer row. Still other fields are seen in which these hyperplastic cells of the outer row are both intra-acinic and extra-acinic, consequently presenting epithelial invasion of tissue, the accepted picture of cancer. Furthermore, what is impressive, the three conditions just described have been observed together in the same microscopic field.

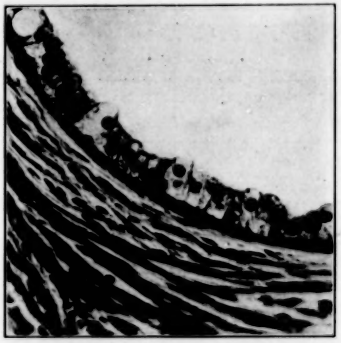

Fig. 8.—Normal prostatic epithelium.

An analysis of this comparative study of the prostate and the mammary gland indicates that an analogy exists between the microscopic pictures of epithelial changes in the cancerous process of both organs. The analogy being accepted, it follows that this study of the prostate adds further support to MacCarty's deduction, drawn from extensive observations on epithelial growths of the breast. If adequately prolonged and comprehensive investigations in the future positively confirm the present view of the latter author, it may be stated of the prostate that, whatsoever the associated pathologic condition or wheresoever the original focus, these are factors which are unessential to the process of cancerous development; that this is essentially a process of epithelial hyperplasia, involving the above-described undifferentiated cells, in a state of reaction to an abnormal irritant. Furthermore, for the pathogenesis of cancer it would not be necessary to assume the theory of "embryonic rests."

Frequency.—Statistics indicate that we are indebted to the investigators of the past half century for the existing knowledge of cancer of the prostate. The first useful statistics were compiled by Thompson[4] (1854) who cited 18 cases from the English and the French literature. Wyss[4] (1866) reported 28 cases, including Thompson's; Socin[4] (1875), 50 cases; Kapuste[4] (1885), 54 cases; Engelbach[4] (1888), 144 cases; Wolff[5] (1899), 110 cases. Since 1902, numer-

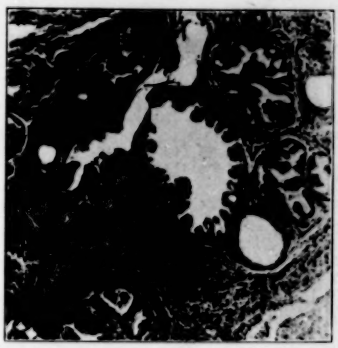

Fig. 10.—Normal prostatic epithelium, proliferating and projecting in masses in the lumen of the acinus.

ous reports of malignant prostatic conditions have been contributed. It is the statistics of the more recent writers, however, which, although varying within somewhat wide limits, afford us the nearest approximation to the truth with regard to the frequency with which cancer occurs in the prostate.

In 500 cases of prostatic obstruction, Young[6] found cancer in 20 per cent. The same author states that about one out of every seven enlarged prostates after 50 years of age is cancerous. Albarran and Hallé noted 14 per cent.; Walker,[7] 16.5 per cent.; Wilson and McGrath[8] (1911), 468 reexamined prostatic specimens

Fig. 11.—Normal prostatic epithelium, proliferating and projecting in masses in the lumen of the acinus.

removed at operation, 15.5 per cent.; Freyer[9] (1914), 1,276 cases of enlarged prostate, 13.3 per cent. In the

4. Cited by von Frisch, Der Krankheiten der Prostata, Ed. 2, 1910.
5. Wolff: Deutsch. Ztschr. f. Chir., July, 1899, lii, parts 3 and 4.
6. Young, Hugh, H.: Ann. Surg., 1909, l, 1232; The Early Diagnosis and Radical Cure of Carcinoma of the Prostate, THE JOURNAL A. M. A., March 10, 1906, p. 699.
7. Walker: Lancet, London, April 11, 1908, p. 1054.
8. Wilson and McGrath: Surg., Gynec. and Obst., December, 1911, p. 647.
9. Freyer: Arch. Internat. de chir., 1914, vi, No. 4.

present series of 716 specimens (including the 468 cases reported by Wilson and McGrath in 1911), 12.28 per cent.† are cancer.

Age.—One patient was between the ages of 40 and 50. Seventy-eight per cent. were between 60 and 80. Other investigators have found about 68 per cent.

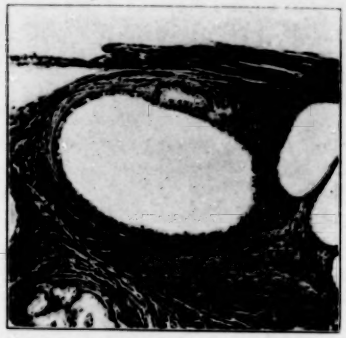

Fig. 12.—Cystic acini, showing two rows of cells, inner and outer row, similar to pictures seen in breast in primary hyperplasia.

between the ages of 50 and 70. Wolff reports six patients under 40; one, 29 years of age.

Mode of Involvement.—Cancer of the prostate is primary in the great majority of cases. The gland is involved secondarily by adjacent cancer or through metastasis by way of the blood-stream. Rectal ulceration is the most frequent source of secondary prostatic cancer from contiguous structures. About one-half the cases of secondary involvement are metastatic from remote organs.

Site of Origin.—The most commonly ascribed site of the original focus in primary cancer of the prostate is the posterior lobe; but its presence in the lateral and middle lobes has been noted by some authors.

Fig. 13.—Cystic acini, showing two rows of cells, inner and outer row, similar to pictures seen in breast in primary hyperplasia.

Growth.—The cancerous process has been observed to involve the entire prostate symmetrically and rapidly, but the consensus of investigators' opinions is that, in by far the large proportion of cases, cancer of this gland is limited, occurring as one or several little nodules and of slow growth. Consequently, gross serial sections of the specimen and microscopic examination of every doubtful area are essential for the diagnosis in the great majority of cases. Failure to appreciate this point, also neglect to examine the posterior lobe, are the probable cause of statistics with low percentage of cancer, likewise of inadequate treatment and erroneous prognosis.

Extension.—In the extension of prostatic cancer the fascia of Desnonvillers, also the fibrous capsules, both of the prostate itself, and of hypertrophied spheroids, lobules or lobes, are accredited with an essentially important rôle. Young emphasizes this point. Cuneo and Veau[10] have shown that the fascia of Desnonvillers is a prolongation downward of the peritoneum in fetal life, which projecting in a plane between the prostate and the seminal vesicles in front, and the rectum behind, by virtue of its reduplication doubly inhibits the spread of cancerous cells posteriorly. Consequently, ulceration of the rectum is infrequently seen and periprostatic structures are quite effectively guarded. The tendency, then, of the cancerous process is to extend upward to the region of the ejaculatory ducts, between the fascia of Desnonvillers posteriorly and the trigone anteriorly. Young maintains that the mucosa and submucosa of both urethra and bladder are very resistant to the malignant invasion. On the other hand, von Frisch[11] notes extensive involvement of both these structures. The seminal vesicles are frequently involved, and the growth may extend along the ureters, causing complete obstruction, even rupture. Extension upward for a long distance within the vasa deferentia, without apparent involvement of the outer walls, may occur (Young). Cases noted by von Frisch were: Growth into rectum with subsequent extensive involvement of the sacrum. Growth through the obturator foramen and between the adductors of the thigh. Once the capsule is permeated, the cancerous process spreads extensively.

Fig. 15.—Normal epithelium in acinus, acinus with exfoliation of differentiated cells, acinus with some exfoliated differentiated cells and invasion (?) of stroma by hyperplastic cells of the outer row.

Metastasis.—This occurs in bones, lymphatic glands and internal organs. Important to be emphasized is the fact that, whereas the primary cancer of the pros-

† In the last 248 cases of this series only the specimens already diagnosed cancer were studied. It is probable that reexamination of the remaining specimens will increase the percentage of malignancy.

10. Cuneo and Veau, cited by Bryan: Lancet-Clinic, April 20, 1912, p. 433.

11. Von Frisch: Die Krankheiten der Prostata, Ed. 2, 1910.

tate is usually small, metastases from it are commonly extensive. The most frequent sites are the skeletal bones and the lymphatic glands. Visceral metastasis is comparatively infrequent, probably occurring in about 25 per cent. Kaufmann[12] remarks the infrequency of glandular metastasis from prostatic cancer compared with that from cancer of other structures. In 100 collected cases this author found involvement of the pelvic glands 27 times; iliac, 24; inguinal, 16. Young, whose figures agree with those of Kaufmann as to the involvement of the pelvic glands, says: "It shows the fact that one should not expect enlarged glands before making a diagnosis of carcinoma of the prostate." Blumer[13] states that cancer of the prostate gives rise to metastasis in bones in a much larger proportion of cases than any other form of cancer — probably in two-thirds of patients in whom it is allowed to run an unobstructed course. Von Recklinghausen[14] emphasizes the fact that the cancerous focus in the prostate is, in comparison with the advanced foci in the bone, small and insignificant. The author directs attention to the analogy between metastasis in bone from a small nodule of cancer in the female

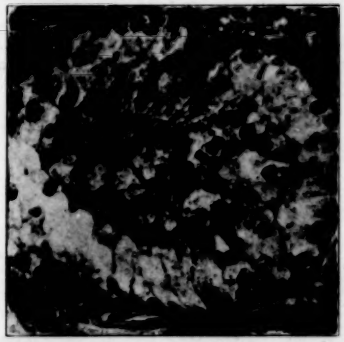

Fig. 16.—High power of acinus in Figure 15, showing both exfoliated differentiated cells and hyperplastic cells of the outer row.

breast and that from cancer of the prostate, and gives warning to suspect these sources in case of severe pain in the spinal column without evident cause. Blumer advises similarly in case of spastic paraplegia — involvement of the spine — and apparent osseous tumors in flat and long bones. In the thyroid, likewise, certain forms of malignant tumors occur which present entirely analogous relations, and such growths may be so small as to escape attention (von Eiselsberg[15]). The metastasis in bone is more or less general, its transmission is vascular rather than lymphatic and nearly always originates in the medulla—rarely beneath the periosteum (Blumer).

SUMMARY

1. An analogy exists between the microscopic fields of epithelial changes observed in cancer of the prostate and those of the mammary gland, as presented by MacCarty.

2. In the undoubted histologic picture of cancer, both organs present in the stroma migratory epithelial cells which are morphologically indistinguishable from the hyperplastic undifferentiated cells within the acinus.

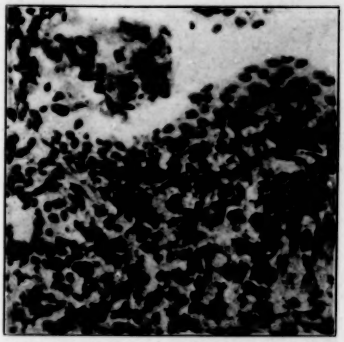

Fig. 17.—Acinus in Figure 15, in which there are exfoliation of differentiated cells, hyperplastic cells of the outer row and immediate peri-acinic invasion of stroma by hyperplastic cells of the outer row.

3. According to the studies of MacCarty, these intra-acinic, hyperplastic, undifferentiated cells represent the precursors of the specific functional cells of the gland; consequently, the positively cancerous cells are the direct, immediate descendants of those which become the differentiated cells under normal conditions.

4. This analogy between the prostate and the mammary gland being accepted, further support is

Fig. 18.—Acinus showing the two rows of cells, acinus showing the hyperplastic cells of outer row, completely filling the lumen.

added to MacCarty's deductions, drawn from extensive studies of the breast. And, if adequately prolonged and comprehensive investigations in the future confirm the present view of the latter author, then it may be stated of prostatic cancer, as well as of cancer in general, that the process is fundamentally one of

12. Kaufmann: Lehrbuch der speciellen pathologischen Anatomie, Berlin, 1901.
13. Blumer: Johns Hopkins Hosp. Bull., July, 1909, p. 200.
14. Von Recklinghausen: Festschr. zu Virchow 71. Geburtstag, Berlin, 1891.
15. Von Eiselsberg: Arch. f. klin. Chir. (Langenbeck), xlvi, 1893.

epithelial hyperplasia of the above-described undifferentiated cells, in a state of reaction to an abnormal irritant; furthermore, that for the pathogenesis of cancer it would not be necessary to assume the theory of "prenatal or postnatal rests."

5. Cancer of the prostate is a comparatively frequent disease after 50 years of age.

6. The process usually begins in the posterior lobe and occurs more commonly as a small nodule or

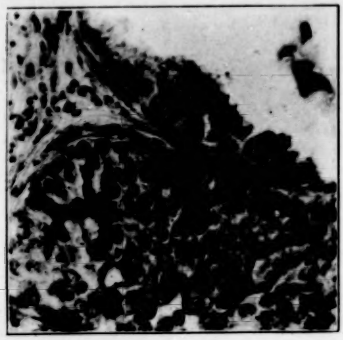

Fig. 20.—Same as Figure 19, showing in upper acinus primary and secondary hyperplasia; in lower acinus, secondary hyperplasia.

nodules of slow growth; consequently, *careful investigation of the posterior lobe, gross serial sections of the specimen, with microscopic examination of doubtful areas, are essential for diagnosis in the majority of cases.*

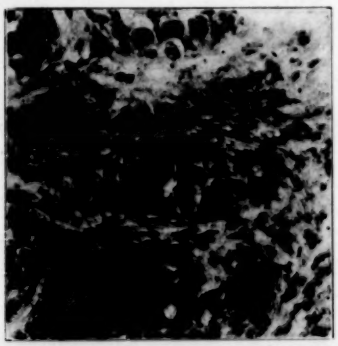

Fig. 21.—Same slide as Figures 18, 19 and 20, showing hyperplastic epithelial cells in the stroma, probably a lymphatic space (tertiary epithelial hyperplasia, or cancer). The cells are morphologically indistinguishable from the intra-acinic hyperplastic cells of the outer row (secondary hyperplasia).

7. The fascial strata associated with the prostate seem to be quite effective barriers to the progress of the disease.

8. The tendency of extension of the cancerous process is upward to the region defined by the fascia of Desnonvillers posteriorly and the trigone anteriorly, and then beyond this area.

9. Metastasis affects bones, lymphatic glands and internal organs. The cancerous focus in the prostate may be, and commonly is, insignificant, while the metastasis in bone is extensive. Similar relations have been observed with small cancerous nodules in the female breast and the thyroid. Manifestations in bone, with cause obscure, should direct attention to these observations.

10. Involvement of lymphatic glands is not a dependable factor in diagnosis, since metastasis may be present in the skeletal structure and these glands apparently unaffected.

A COMMON MECHANISM FOR MOST INJURIES OF THE SHOULDER REGION

SUPPORTED BY THE RESULTS OF TREATMENT, INCLUDING FORTY-NINE OPERATIONS *

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During the past six or seven years I have been making a study of a series of traumatic conditions affecting the shoulder and arm, and have presented a special study of each condition. The views expressed have been radical because they were based on a new

Fig. 1.—Humerus at normal limit of abduction. Leverage effect begins when capsule tears, which usually occurs at the glenoid or humeral attachment. Each of the diagrams on effects of hyperabduction on skeleton of shoulder region includes, except Figure 10, the clavicle, scapula, upper half of the humerus and capsule of the shoulder-joint.

conception of the etiology. The clinical experience by which they were supported was small because the methods of treatment were new and because the "let alone treatment" has been the rule in most of these cases. Of one of these conditions, recurrent dislocations of the shoulder, I recently reported the results of operation on eighteen shoulders, the largest number previously reported by one writer being four. I have since operated on four more. My particular purpose, now, is to show that they can be traced to an essentially common cause, and that the views offered have a rational anatomic basis and are justified by the results of treatment. It is important to bear in mind that we are dealing here with conditions that have always been the subject of much discussion and conjecture.

The conception of the anatomic basis of these conditions was of gradual development. For more than ten years I had been working on the applications of anatomy to surgery, with the cadaver as the basis of the work. There is no essential difference in the signs

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

obtained in a dislocation of the shoulder on the cadaver produced by hyperabduction, and in the usual dislocation of the shoulder in life, which is generally admitted to be due to hyperabduction. The best knowledge we have of dislocations of the shoulder and hip has come from studies of cadaver dislocations. If methods of treatment founded on such studies produce distinctly better results than those in vogue and not supported by such work, then they should and, I believe, will receive the consideration of the profession. For a fuller discussion of the various phases of the work, I must refer the reader to previous papers, references to which will be given later. My object now is to present a perspective outline of the whole subject, and this demands brevity.

Fig. 2.—Capsule torn extensively from glenoid margin, head pried out of socket and humerus moved downward on edge of acromion. In recurrent dislocations, gap between torn capsule margins is later bridged across by new cicatricial capsule.

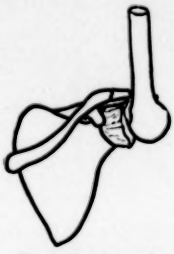


Fig. 3.—Capsule torn from humeral attachment in whole circumference, taking with it a fragment of greater tuberosity. This lesion is sometimes responsible for flail shoulder-joint.

It is of much importance to know the mechanism by which an injury to the skeleton is produced. We know very little about this whole subject. Concerning fractures and dislocations, even our largest systems of surgery have little more to say than that they are due to direct or indirect violence. We cannot rely much on the statements of the patients as to how the force was applied. They were too excited at the time and usually do not know until later where the force was expended, and then only in a very vague way. The relationship between cause and effect is more obvious in injuries of the skeleton at the ankle and wrist than in any other part of the body, probably because of their proximity to the part of the body coming in contact with the ground or injuring object. In these injuries we recognize more clearly the effects of the falls on the palm of the hand and the turning of the foot inward or outward due to the lateral instability of the foot. In no other parts of the body is there the same unity of opinion concerning the mechanism of fractures and dislocations. My whole case has been built up on the hypothesis that hyperabduction is to shoulder injuries what forced dorsal flexion is to wrist injuries and the lateral turns of the foot are to injuries of the ankle. But the influence of hyperabduction is not so obvious. A little reflection, however, will show that no movement at the shoulder is forced as frequently and violently as abduction. Only the muscles and joint ligaments on the axillary side resist, and as the capsule is an integral part of the skeleton it must suffer more than any other soft structure from the forces applied to the skeleton. It has been my contention that in falling, if conscious, a person practically never strikes on his shoulder, and I regard it as very important that Codman, who has been a close student of shoulder injuries, agrees with this contention. I believe that in falling one practically always puts out his hand to break the force of the fall and that the effect at the shoulder is to carry the arm into abduction. The only pathologic effect of hyperabduction at the shoulder that is generally recognized is the anterior dislocation, and even in this condition we have not appreciated its full importance. In my opinion, it is the key to the solution of the obscurity in most shoulder injuries.

I wish to suggest here how it may explain other injuries to the skeleton than at the shoulder-joint. The lateral turns of the foot produce sprains and sprain fractures, Pott's fractures, lateral dislocations of the subastragaloid joint and even of the ankle-joint, and probably other injuries to the skeleton, also. At the shoulder, what do we know, for instance, of the mechanism of fractures and dislocations of the clavicle, or fractures of the surgical neck of the humerus? We know practically nothing, so that a plausible suggestion should be worth while. Without movement of the scapula, abduction is arrested at or a little above the horizontal by tension on the axillary portion of the capsule which turns the scapula on further abduction (Fig. 1). When the normal limit of abduction is passed, some part of the skeleton gives way. In adults, in the great majority of cases, this is probably the shoulder-capsule, which includes all the ligaments of the shoulder-joint; but why should not other parts of the skeleton break, here, as at the ankle? My cadaver studies show that the first effect of hyper-

Fig. 4.—Upward dislocation of outer end of clavicle from hyperabduction.

Fig. 5.—Anterior dislocation of shoulder with arm at side. Upper portion of capsule untorn.

Fig. 6.—Fracture of surgical neck of humerus. Upper end of lower fragment displaced upward, forward and inward, like the head of the humerus in anterior dislocation of the shoulder.

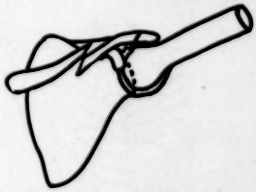
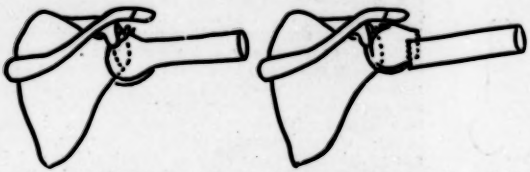


Fig. 7.—Fracture of middle clavicle from hyperabduction. Outer fragment forced downward and inward like acromion in Figure 4.

abduction at the shoulder-joint is to tear the axillary portion of the capsule. Then the outer surface of the humerus just below the tuberosities strikes the edge of the acromion, when further abduction pries the humeral head out of its socket below and anteriorly (that is, into the axilla), the humerus sliding on the acromion at their point of contact (Fig. 2). But the dislocation is the end-result of hyperabduction and requires an extensive tear of the capsule. Between the force necessary to produce this severe result and



Figs. 8 and 9.—Same as Figures 5 and 6, with humerus in about same plane as clavicle and acromion, showing same displacement of outer fragment as in Figures 4 and 7.

that which the capsule can withstand without tearing, there will be many grades applied, producing lesser tears or sprains of the shoulder-joint. There are, in all probability, many cases in which dislocations are spontaneously reduced as the arm falls to the side of the body. Most traumatic stiff and painful shoulders are probably due to lacerations of the axillary portion of the capsule produced by hyperabduction. But with the tearing of the capsule, or without it, a neighboring part of the skeleton may give way.

It is a significant fact that fracture of the surgical neck of the humerus is not infrequently associated with an anterior dislocation of the shoulder. It is more than likely, in such cases, that both lesions are due to the same mechanism, and it is generally agreed that the dislocation is due to hyperabduction. The limitation of movement in the shoulder-joint, frequently observed and often severe after fracture of the surgical neck without dislocation, could be explained by a simultaneous tear of the capsule, with or without a simultaneously reduced dislocation. The fracture would represent the breaking of the lever, the humerus, at the fulcrum, the acromion (Fig. 1). Mencke[1] has recently called attention to the frequency of fractures of the acromion, which may be explained as the giving way of the fulcrum itself. I shall call attention, briefly, to other fractures of the fulcrum, later. Mencke found that in some cases the fracture of the acromion was associated with anterior dislocation of the shoulder, which in these cases, at least, is strong evidence that the fractures were due to hyperabduction. Fractures of the greater tuberosity of the humerus are well known to be frequently associated with anterior luxations of the shoulder. I have obtained about ten or twelve typical fractures of the greater tuberosity simply by producing anterior dislocations of the shoulder in the cadaver by hyperabduction. In each instance the capsule tore from its humeral attachment, the continuing abduction tearing the capsule progressively upward to the greater tuberosity which was detached, the varying-sized fragment maintaining its attachment to the corresponding portion of the capsule (Fig. 3) and the overlying rotators. I have operated in several cases and have also had several cadaver dislocations in which the capsule tearing from the glenoid margin carried with it a fragment of the glenoid. These fractures, therefore, seem to depend on the manner in which the capsule tears from hyperabduction.

Fig. 10.—Upward dislocation of inner end of clavicle from hyperabduction. The relation of the sternum to the clavicle prevents the downward displacement of the latter.

The fulcrum, in the lever-age mechanism of hyperabduction, is the acromion. But the acromion is attached to the rest of the skeleton by the clavicle, which, therefore, becomes an important part of the fulcrum. This may break at any point, but is more liable to do so at some points than at others. Of the two clavicular joints, the outer gives way much more frequently than the inner, while the clavicle breaks most frequently about its middle where it is thinner and least protected by muscles and ligaments. In his fractures of the acromion, Mencke included cases in which a small fragment was detached from its articulating surface with the outer end of the clavicle. I have seen one case of this kind and several others in which the Roentgen ray failed to show such a fracture, but in which the pain following an injury to the shoulder was sharply localized to this joint. I have had two cases in which an upward dislocation of the outer end of the clavicle (by far the most frequent variety) was associated with an anterior dislocation of the shoulder which indicates that both resulted from hyperabduction. The line of this joint is slightly oblique from above downward and inward, the obliquity varying

Fig. 11.—Left shoulder injured three years ago. Severe paralysis appeared on following day. Total paralysis of hand four weeks later when shoulder ankylosis was broken up under ether. Returned to work in six weeks with limb weak, especially hand. Normal power and motion in one year. Picture taken one week ago showing patient supporting 40-pound dumb-bell with left arm, which is about as strong as right.

1. Mencke: Ann. Surg., 1914, lix, 233.

in different cases. The effect of the leverage mechanism at this joint is to crowd the acromion inward against the outer end of the clavicle, and if the force is strong enough, to drive the acromion under the clavicle because of the favoring obliquity of the joint and the tendency of the lever to turn the outer end of the acromion upward and the inner end downward (Fig. 4). The force expended at this joint may be sufficient only to cause a painful joint by the strain on or tearing of the ligaments, the contusion from crowding the bones together, or the fragmentation of the apposed articulating surfaces.†

Fig. 12.—Showing relation of branches of brachial plexus to torn axillary portion of shoulder capsule. Hemorrhage from this and other injured tissues with synovial fluid from opened joint extravasates around and into the nerves and with the resulting inflammatory exudate produces a palsy of the limb of varying grade and distribution. The torn and relaxed capsule is shortened by the cicatricial healing.

If we regard these four conditions as fractures of the skeleton with overlapping of the fragments, we shall find that the typical deformity is the same in all. In the anterior dislocation of the shoulder (Fig. 5) and typical fracture of the surgical neck of the humerus (Fig. 6), the lower fragment is displaced upward, inward and forward, while in the fracture of the clavicle (Fig. 7) and dislocation of its outer end (Fig. 4), the proximal fragment is displaced downward, inward and forward. The difference here is only apparent, for if the humerus is abducted until it is in the same plane as the clavicle and acromion, then the upward displacement of the humerus in the fracture of the surgical neck and anterior luxation of the shoulder-joint becomes a downward displacement (Figs. 8 and 9) as in the fracture and luxation of the clavicle. This similarity in the usual deformity in all of these conditions suggests strongly a common mechanism, hyperabduction, which we agree is responsible for one of them, the anterior dislocation of the shoulder. The well-known greater frequency of fractures of the clavicle in children and dislocations of the shoulder in adults could be explained by a relative difference in strength of these two portions of the skeleton at these two periods in life. The great infrequency of dislocations of the inner end of the clavicle and the usual upward displacement of the proximal fragment in this fracture of the skeleton are readily explained by the conformation of the joint (Fig. 10), which absolutely prevents a downward displacement of the proximal bone or fragment as in the other fractures of the fulcrum. It tends to neutralize the effect of the force and thus to diminish the number of dislocations. The leverage mechanism might crowd the inner end of the clavicle upward in rare cases, but it cannot force it downward as it does in the other fractures of the skeleton referred to. I have offered, here, these few brief suggestions concerning other breaks in the skeleton than at the shoulder-joint to show that, probably, we have overlooked the possibilities of hyperabduction in the shoulder region. My particular interest is in its effect on the shoulder-joint.

Fig. 13.—Left shoulder operated on for recurrent dislocations, Dec. 29, 1909. Same shoulder dislocated in wrestling, Nov. 25, 1912. Patient has again taken up wrestling. This picture taken a few weeks ago. Obviously more severe strain in getting into than maintaining this position.

STIFF AND PAINFUL SHOULDERS[2]

According to my conception, the very frequent stiff and painful shoulders, which have been so obscure and the subject of so much discussion, represent the same condition at the shoulder as follows sprains and dislocation in other joints. The characteristic limitation of abduction and external rotation results from immobilization of the arm in the "sling" position, that is, in adduction and internal rotation. A varying grade of palsy is always present in the early stages and is due to the inclusion of some or all of the branches of the brachial plexus in the consequent axillary inflammation. This is usually mild and soon disappears with the return of normal motion to the shoulder joint. In some cases it is severe, affects most the muscles of the shoulder region, but in rare cases it involves most the muscles of the forearm and hand (Fig. 11). The therapeutic indication is to restore normal motion by exercises to stretch or forcible manipulations under ether to tear the contracted axillary tissues, especially the capsule (Fig. 12).

Fig. 14.—Patient operated on six and a half years ago for recurrent dislocations of right shoulder. No recurrence of dislocation since. Patient supporting whole weight by hanging from right hand.

Fig. 15.—Same patient as in Figure 14 supporting his whole weight by standing on right hand.

RECURRENT DISLOCATIONS OF THE SHOULDER[3]

If after the reduction of a dislocation of the shoulder, the arm is not kept at the side and is soon carried forcibly into abduction, particularly if external rotation is added, the humeral head is easily pried out of the socket again because the capsule has not had time to heal. Its torn edges are again forced apart and

† Recently, Sievers, in the Trendelenburg Festschrift of the Deutsch. Zeitschrift für Chirurgie, cxxix, 583, presented an extensive study, showing that injuries of this joint are frequent.

2. Thomas: Am. Jour. Med. Sc., April, 1911; Therap. Gaz., April 15, 1913.

3. Thomas: Am. Jour. Med. Sc., March, 1909; Recurrent Anterior Dislocation of the Shoulder, THE JOURNAL A. M. A., March 12, 1910, p. 834; Surg., Gynec. and Obst., January, 1914.

the repetition of this accident will leave them permanently separated by the width of the gap necessary for a dislocation, the gap becoming filled in by new cicatricial capsule, much as the gap in a divided Achilles tendon is filled in. The lengthened axillary portion of capsule will not now contract and a recurrent dislocation is established. Shortening by overlapping or folding of the lengthened capsule is indicated.

Fig. 16.—Typical position in obstetric palsy. Mother said to have recognized dislocation of shoulder one week after birth.

Fig. 17.—Obstetric palsy with posterior subluxation incompletely reduced by operation at 7½ years of age. No paralysis now. Range of movement and power very similar to that in case of old unreduced dislocation of shoulder in adult (Fig. 21).

Five years ago I reported the first case in which the operation was done through the axilla and was the first to exclude all other causes than the lengthened axillary portion of capsule. I have now done the operation on twenty-two shoulders. Telford[4] did it in two cases and recommended it highly. Stimson[5] spoke of it as the ideal operation, and, recently, Schultze[6] excluded all other causes than the relaxation of the axillary portion of the capsule and favored the axillary operation, although it was not done in any of his cases. A 4- or 5-inch incision is made posterior to the axillary vessels, no muscles are divided, no sutures except those in the skin remain, those used to overlap the capsule being withdrawn when the arm is in the Velpeau position so that the overlapping cannot afterward be disturbed, and ligatures are rarely necessary. The only infection was due to a tense capsule suture that grasped too much tissue and was tied too tightly, causing necrosis. This was in the third case operated on and it cannot occur again because no capsule sutures are employed.

In five cases a dislocation occurred after operation from severe violence with the arm in abduction and external rotation, and in one case after two operations in an epileptic with powerful convulsions and a large defect in the humeral head. This was a complete failure. The other four (non-epileptics) were successful later, because the condition produced by the dislocation, with the arm kept at the side four or five weeks, induces a cicatricial contraction of the axillary portion of the capsule just as it does after a recent dislocation. After operation the capsule must tear before a dislocation can take place, so that if advantage is taken of this fact the capsule may become as strong or stronger than before the dislocation. For this reason the patients are encouraged to make the fullest use of the arm and are told that the condition necessary for a recurrent dislocation will not return (Fig. 13). In this way the possibilities of the repaired shoulder are developed and the usual persistent fear of a recurrence is done away with (Figs. 14 and 15).

BRACHIAL PALSY FROM INJURY TO THE SHOULDER REGION[7]

The obvious cause of a brachial palsy following an injury to the shoulder region is an injury to the nerves supplying the part paralyzed. The prevailing view is that they are due to a more or less complete rupture of one or more roots of the brachial plexus. I have tried to show that most of them, in adults, are due to the inclusion of the branches of the plexus in the axillary inflammation consequent on a laceration of the axillary portion of the shoulder-capsule (Fig. 12). I wish to state moreover that nearly all the cases which have come under my observation have been associated with an ankylosis of the shoulder-joint and a characteristic limitation of abduction and external rotation, the disappearance of which was followed by a return of the normal power. The key to the solution of the problem is the anterior dislocation of the

Figs. 18 and 19.—Complete palsy of right arm at birth. Then ascribed to rupture of the brachial plexus. Right limb as strong and as large as left now. Slight limitation of abduction and external rotation due to mild posterior subluxation of shoulder.

4. Telford: Lancet, London, Aug. 5, 1912.
5. Stimson: Fractures and Dislocations, 1912, p. 668.
6. Schultze: Arch. f. klin. Chir., 1914, No. 1, p. 38.
7. Thomas: Ann. Surg., January, 1911, ibid., February, 1914.

V. 19

shoulder in which we know an extensive laceration of the capsule occurs. The brachial palsy in the newborn resulting from injury to the shoulder region during delivery is generally agreed to be of the same nature and due to the same cause as that in the adult, an injury to the brachial plexus. My experience and study lead me to believe that most of them are the results of injuries of the shoulder-joint as in adults. That birth-palsies are due to injuries of the skeleton in the shoulder region and not to injuries of the brachial plexus is not a new suggestion. Küstner,[8] in 1889, argued at length to show that they were due to separations of the upper epiphysis of the humerus and that those with deformity were due to displacement of the diaphyseal fragment backward or forward. The evidence is rapidly growing which will show that these displacements are almost always due to posterior subluxations of the shoulder-joint. Küstner suggested that mild obstetric palsies in which the paralysis disappeared in a few days might have been due to blood extravasations the pressure of which paralyzed the nerves. Von Bramann[9] quotes Vogt to the effect that in congenital dislocations of the shoulder there was a paralysis due to the displacement in the shoulder-joint. Von Bramann believes that the muscles suffer from their inactivity without being paralyzed.

Fig. 20.—Obstetric palsy at birth without dislocation of shoulder. Now has evidence of old injury at elbow and very slight limitation of abduction and external rotation in affected (right) shoulder. No evidence of paralysis now. Uses right arm freely and powerfully as left.

According to my conception, the adult and the birth cases are similar because they are both due to injuries of the shoulder-joint, the basic lesion in both being that of a dislocation of the shoulder. In the adult, when there is no dislocation, complete recovery ultimately results in the great majority of cases. This seems to be true of the birth palsies. When the dislocation persists in the adult, there remains a permanent crippling of the arm and a considerable palsy which in the early stages was much more severe. The condition is very similar in the child when there is a dislocation present (compare Figures 17 and 21). The more delicate muscles and nerves in the child will account for a more severe palsy in all stages, but the improvement in them is also very marked as the years go by. The treatment based on this conception gives far better results than that based on a supposed rupture of the brachial plexus. F. Lange,[10] who has adopted the theory of a shoulder-joint origin, says that the day for the "let alone" treatment of obstetric palsy has passed by. The great need at the present time is to recognize the mild grades of posterior subluxation in these cases. It will often take careful examination to determine the absence of the normal rounded prominence of the humerus in front of the acromion and the slight prominence of the head behind the acromion where there should be a slight depression.

OLD UNREDUCED DISLOCATIONS OF THE SHOULDER[11]

From cadaver and clinical study it was assumed that the chief obstacle to reduction was in the cicatricial changes in the torn and now abnormally arranged capsule, some portions healing short and resisting the reduction. As the head left the socket with the arm in abduction, the best method of reduction should be to drag the head back into the socket with the arm in the same position. This would be applying to the shoulder the Allis principle for the reduction of dislocations of the hip. The Kocher method is the application to the shoulder of the Bigelow principle for the reduction of dislocations of the hip. By fixing the scapula firmly and confining the traction to the humerus, the force applied will be confined to the structure holding the scapula and humerus together, that is, the cicatricially altered capsule which must be torn before the head can be moved from its dislocated position. Very severe traction was made in nine cases (see summary), but caused no troublesome symptoms in any. The same method proved successful in recent dislocations of the shoulder.

BRACHIAL PARALYSIS WITH FLAIL SHOULDER-JOINT[12]

Brachial paralysis without the flail shoulder is much more common than with the flail shoulder. The injury to the brachial plexus is assumed to be responsible for both, but we have no explanation for this very important difference in the results of this lesion. The cases without flail shoulder practically always recover with the return of normal motion to the shoulder-joint. I believe there was not a case on record of recovery of the flail shoulder type until I reported two such recoveries three years ago (Fig. 22). These recoveries followed merely the operative removal of the flail shoulder within eight weeks after the causal injury and the restoration of the normal motion to this joint (see summary). My conception of the etiology of these cases is that they are due to the same mechanism as those without flail shoulder, except that the attachments of the capsule and rotator muscles are so torn that the humerus falls away from the socket until it is supported by the surrounding uniform muscles and other tissues (Fig. 3).

Fig. 21.—Dislocation of right shoulder three years ago. Still unreduced. Movement and power much improved by exercises during past year, favored, probably, by wearing away of dislocated bones where they are in contact (see Fig. 5).

8. Küstner: Handbuch der Geburtshülfe, 1889, p. 301.
9. Von Bramann: Arch. f. klin. Chir., 1906, lxxxi, 357.
10. Lange, F.: München. med. Wchnschr., 1912, No. 26.
11. Thomas: Ann. Surg., January, 1913.
12. Thomas: Jour. Nerv. and Ment. Dis., 1911, xxxviii, No. 4.

SUMMARY OF CASES AND RESULTS OF TREATMENT

The treatment in each condition has been based on new conceptions as to etiology. This is less true of recurrent dislocations than of any of the other conditions, the contraction of the capsule having been done occasionally for about thirty years. In January of this year, I published the results of this operation in eighteen shoulders. In April, Schultze reported the late results in thirteen shoulders operated on in Bier's clinic since 1908. I have now operated on twenty-two shoulders. These are the only two reported groups of cases in which a satisfactory comparison of results can be made.

SCHULTZE'S CASES

Since 1908 capsulorrhaphy done in	16 shoulders
Late results investigated in	13 shoulders
Recurrence of dislocation (regarded as failures) in	7 shoulders
No recurrence in	6 shoulders

Shortest interval since operation, 1¼ years.

AUTHOR'S CASES

Since Jan. 18, 1908, capsulorrhaphy in	22 shoulders
Recurrence of dislocation in	5 shoulders
No recurrence	17 shoulders

(Excision later in one of these.)

Of the 5 cases with recurrence after operation, 4 were later made successful without operation and 1 was a failure after two operations.

Operations in epileptics	7 cases
Successful (no recurrences)	6 cases
Failure in	1 case

Fig. 22.—Brachial paralysis of left side with flail shoulder joint following shoulder injury five years ago. Relaxation of upper and posterior portion of capsule and overlying rotator muscles overcome by operation, eight weeks after accident. Power and motion of limb practically normal about four months later and have remained so since. Some permanent atrophy of infrascapular muscles from operative shortening.

Old Unreduced Dislocations in Adults

Non-operative reduction successful:

After 8 months; 4 months; 8 weeks (with fracture of shaft of humerus); 25 days, and 16 days.

Non-operative reduction failed after 3 months; excision; fatal from hemorrhage.

Reduction accomplished but not maintained:

After 2 years; 4 years; and 5 years (excision with good results).

Very marked improvement in motion and power from exercises in the two cases not excised.

Obstetric Palsy

Number of cases	13
Without posterior subluxation of shoulder	4
Perfect recovery of power and motion	2
Very slight and negligible limitation of motion at shoulder and old injury at elbow	1
Six months old and excellent promise of complete recovery of power and motion	1
With posterior subluxation of shoulder	9
Incomplete reduction (obstructing portion of acromion not recognized and removed)	2
Complete reduction	2
Almost complete reduction	1
Mild subluxation not reduced	1

Excellent results in these six cases, varying largely with the degree of motion attained and, therefore, with the time since treatment began and completeness of reduction.

Operative reduction of anterior luxation of head of radius; recurrence	1
No attempt at reduction of shoulder luxation and indifferent treatment	2

Brachial Paralysis with Flail Shoulder

Operative Removal of Relaxation:

Adults:

Complete recovery of motion and power	2
Left country early with stiffness of shoulder, but recovery of paralysis	1
Comminuted fracture of middle of humerus with improvement of paralysis, but non-union	1
Stiffness of all joints but recovery of paralysis	2

Children:

Encouraging improvement of paralysis, but far from satisfactory	4

Miscellaneous Operations

Exposure of subacromial bursa	3
Exposure of greater tuberosity	4
Suppurative arthritis (axillary drainage)	1
Second capsulorrhaphy for recurrent dislocation	1
Excision after capsulorrhaphy for recurrent dislocation	1
Total number of operations on shoulder	49

I wish to acknowledge my indebtedness to the artist, Mr. Erwin F. Faber, of the University of Pennsylvania, for his assistance in the preparation of these diagrams.

2005 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Alfred C. Wood, Philadelphia: As opportunity is rarely afforded to examine a joint by dissection soon after an injury, our knowledge of the joint lesions due to traumatism is very imperfect.

We will be obliged, I believe, to change our views on some of the points that have hitherto been generally accepted concerning these lesions. The suggestion that the several fractures in the neighborhood of the shoulder-joint result from a common mechanism, is ingenious, and, I believe, is sound.

A prolonged or permanent disability of the shoulder after dislocation in certain cases is well known. In addition, however, a large number of cases are met in which a shoulder injury that appears to be relatively trivial is followed by quite as much impairment. These patients have been treated for chronic rheumatism, chronic arthritis, periarthritis, neuritis, etc. We are all familiar with the long and tedious course of these cases when subjected to the ordinary methods of treatment. The explanation just given offers a perfectly satisfactory theory which hitherto has been lacking. The capsule of the shoulder-joint being long enough to permit of a wide range of motion, some portion of it in most positions of the extremity, is relaxed or even thrown into folds. When the elbow is at the side of the chest, the upper surface of the capsule is tense and the axillary portion is lax. If there has been a rupture of this portion of the capsule and the arm is allowed to remain at the side during healing, the tear unites with the capsule more or less plicated and hence the latter becomes unduly shortened. In addition, the circumflex nerve may become involved in the scar. From one or both causes, but chiefly from the shortened capsule, there is greatly restricted motion at the shoulder-joint which it is sometimes difficult to restore to the normal range. To prevent the occurrence of this disability in cases of dislocation or when injury to the capsule is suspected, I have recently been advising that the humerus be kept in a position of partial abduction so that the axillary part of the capsule will be straightened out and smooth instead of lying in folds. If properly carried out I believe this will overcome the restriction of abduction so frequently seen. On the other hand, the abduction must not be sufficient to permit the head of the humerus to drop from the glenoid surface or to cause separation of the capsular tear.

Dr. T. Turner Thomas, Philadelphia: I wish to confirm and, if possible, to emphasize Dr. Wood's statement.

In two cases of anterior dislocation of the shoulder associated with fracture of the surgical neck of the humerus,

I observed his operations and I regard his results in these cases as important. We all know how difficult the reduction of the dislocation may be under such circumstances, with or without operation. In both cases he attempted reduction before operation without success and after freely exposing the head with the same result at this stage in both cases, he divided freely the tense, torn margin of the capsule which had been separated from the humeral attachment and had passed over and behind the head under much tension. To reenter the socket the head had to pass under that tense capsule edge, which was almost if not quite an insuperable obstruction. The free division of this portion of the capsule solved the difficulty and in both cases was followed by easy reduction. The principle is the same as that employed in the reduction by operation of those posterior dislocations at the metacarpophalangeal joint of the thumb which are irreducible without operation. Dr. Wood has shown that such devices as the McBurney hook for pulling the head into the socket, and excision of the head, are unnecessary in these troublesome cases.

A SUBSTITUTE FOR POTASSIUM PERMANGANATE TO LIBERATE FORMALDEHYD GAS FROM A WATER SOLUTION

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Almost immediately after the declaration of war by Germany I requested the department's chemist, Mr. Charles Lawall, to proceed at once to find a substitute for potassium permanganate that would liberate formaldehyd gas from a water solution for the purpose of disinfecting.

In the literature no mention of any other specific substance was found except in an English patent application (4885, J. S. C. I., 1908, page 915), where a combination of sodium bisulphite and formaldehyd solution was acted on by potassium permanganate or other peracid salt and the dry fumigation formula:

Formaldehyd, 37 per cent. solution..... 2 parts
Saturated alum sulphate solution..... 1 part

Eight ounces of this solution are used to 1 pound of lime to 1,000 cubic feet.

Dr. George Rosengarten suggested sodium dichromate as a cheap oxidizing agent, and hydrochloric acid to increase its energy. Lawall found on experimenting that sodium dichromate was more energetic and satisfactory in the presence of sulphuric acid.

Numerous experiments, confirmed by calculations on the relative oxidizing power of potassium permanganate and sodium dichromate, and also working out the optimum proportion of sulphuric acid, led to the conclusion that the following proportion gave the best results, which are in every way comparable to those with potassium permanganate:

Sodium dichromate 10 ounces avoirdupois.
Saturated solution of formaldehyd gas 1 pint.
Sulphuric acid, commercial, 1½ fluidounces.

The sulphuric acid and formaldehyd gas form a stable solution. This after it cools should be poured over the crystals of sodium dichromate spread out in a thin layer over the bottom of a vessel having ten times the capacity of the volume of ingredients used.

It was found that the process was more rapid than with potassium permanganate. This would necessitate the health officer's withdrawing promptly from a room in which the process had been started.

Lawall, when working on a small scale, found in every case a corrosive residue. Much to his surprise the residue in ten minutes was dry and pulverulent, and a galvanized bucket which had been used showed very little effect of the reaction after washing out with soap and water.

He made a quantitative determination by both the permanganate and dichromate methods to determine the amount of volatile material given off and found that in each case it approximated 8 ounces avoirdupois (or about half the weight of the formaldehyd solution taken).

As formaldehyd solution contains between 35 and 40 per cent. of gaseous HCOH and as the residue in each case was found to be dry and particularly devoid of odor after two hours' standing, Lawall concluded that the two methods are equally effective from the quantitative standpoint.

Formaldehyd solution and commercial sulphuric acid may be kept in stock and shipped in the mixed form (10 parts of formaldehyd solution and 1 part sulphuric acid, both by volume). Lawall found the solution would be perfectly stable.

The solution would have to be handled with more care than the plain formaldehyd on account of the acid making it slightly corrosive.

Extensive Scalp and Brain Wound.—J. P., aged 28, American, while working in a planing mill, crawled under the table of a rip-saw to adjust a set-screw. Apparently forgetting the location of the saw, he raised his head, striking the saw which was making 2,500 revolutions per minute. The saw literally split his head open from well down on the forehead diagonally across the head, a distance of 8 inches, cutting through the scalp, bone, superior longitudinal sinus, membranes of the brain, and considerable brain tissue. The patient walked about one hundred yards when he collapsed. The hemorrhage was terrific. The width of the cut was one-fourth inch. I saw the patient about four or five minutes after the injury, and controlled the hemorrhage temporarily by a sterile gauze pack extending well down through the bone. The patient was then removed to a quiet room at a hotel, no hospital being available. With the assistance of Dr. J. F. Abel, I shaved the scalp, washed the head, removed the one large piece of gauze, and replaced four pieces of iodoform gauze packing, which controlled the hemorrhage and drained the wound. The scalp wound was then closed between the gauze packs with sutures. The patient was kept quiet for four days when he was removed to the Mission Hospital, Asheville, N. C., and treated by Dr. M. H. Fletcher, who removed the gauze packs and gave the wound the necessary attention. Considerable brain tissue oozed from the wound while at the hospital. The patient made an uninterrupted recovery and left the hospital the fifth week. He suffered very little during the whole time of confinement, and showed no signs of paralysis or any bad after-effects. He returned to work the eighth week after the injury.

Patient with extensive scalp injury after recovery.

SAM L. STRINGFIELD, M.D., Sunburst, N. C.

FOREIGN BODIES IN STOMACH

REPORT OF AN UNUSUAL CASE

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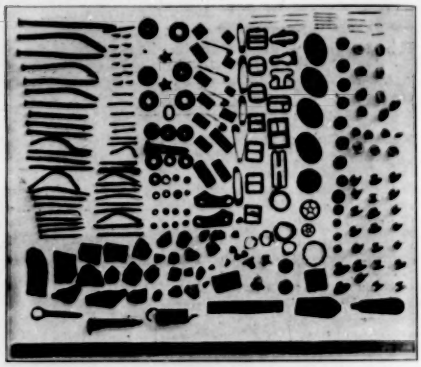
Many cases of swallowing of foreign bodies, especially among the insane, have been reported, but I have failed to find a case in which so large a number of articles were found in one stomach.[1]

History.—The patient, M. M., colored man, aged 27, was admitted to the hospital July 9, 1911, for manic depressive insanity. He was born in Mississippi, was illiterate, and had spent one year in Tennessee State Hospital. The physical condition was good.

The patient's history in our hospital was uneventful. He was noted for his robust physique and irritable temper, was violent and frequently engaged in fights with other patients and his attendants. At no time was he discovered picking up nails or glass, or swallowing these substances; consequently he must have used a great deal of cunning in accomplishing his purpose. He had never been reported sick until



Foreign bodies found in stomach at necropcy of insane patient.

June 12, 1914, when he complained of dyspnea and abdominal pain. Physical examination at this time revealed marked edema of lower extremities, and ascites. The heart and lungs were normal, urinalysis negative, temperature 98.4, pulse 80, respiration 18. Subjective symptoms were indefinite pain and tenderness in abdomen. After a few days of rest in bed with appropriate diet and good elimination, all symptoms improved, but a moderate amount of ascites remained; there was no indication of intestinal obstruction. There was some dyspnea, but the chief complaint was pain in the abdomen. On account of the patient's mental state it was impossible to obtain reliable subjective symptoms.

June 18, 8 a. m., the temperature was 98, pulse 100, respiration 20. Patient had lost in weight and strength and looked sick but sat up in bed, drank his milk with relish at noon, and asked for meat. He died at 4:15 p. m.

Necropsy Report.—Mulatto, medium height, well nourished, with moderate abdominal distention. Lungs were adherent practically over entire surface to thoracic walls and pericardium. There were no tuberculous lesions. There was extensive anthracosis. Heart was of normal size, with no valvular lesion, and no sclerosis of aorta or other arteries. About 2 liters of straw-colored ascitic fluid were taken from abdominal cavity. The intestines were not markedly abnormal; some adhesions were found about the appendix. The omentum was diminished in size, congested and adherent to stomach, was displaced backward and below the stomach, almost in relation with the posterior abdominal wall. The liver was small, surface smooth, gall-bladder filled, but normal; kidneys normal in size and consistency. Pyloric end of the stomach was displaced upward, backward and to the right, lying under the right lobe of the liver. Cardiac end normally placed, distended with gas. Stomach was removed and 236 separate articles weighing, net, 1 pound 9 ounces were removed (see illustration). The walls of the cardiac end of the stomach were not abnormal. Pyloric end was very much thickened and thickly studded with numerous villiform overgrowths. The foreign bodies were practically all collected in the pyloric end, many being embedded in the stomach walls. Pylorus was patent. No undigested food remained in stomach. Esophagus was not abnormal. Stomach contents and walls of pyloric end were blackened, apparently from action of iron. There was no evidence of recent or remote perforations of stomach walls, unless the abnormally adherent omentum might indicate former perforation.

It was evident that many articles had been in the stomach for a matter of perhaps years. Some of the pieces were never known at our hospital; hence the patient must have brought them with him nearly three years before. The fact that such things could remain in the stomach for so long a time and yet patient go about his duties, eat well, remain well nourished and do, whenever called on, heavy manual labor, should be of interest. As short a time as two weeks before his death he carried 100-pound sacks of flour from trucks to the store-room. We are inclined to think that pins, nails or other large objects and especially glass, when swallowed, may mean death or at least alarming symptoms; but this case shows that an abundance of hardware may be ingested and yet the patient live for months and years, with no apparent distress.

ADDENDUM

[A number of cases are on record in which a considerable number of articles were found in the stomach which had carried them, in some cases for years, without showing signs of serious injury. Perhaps the most remarkable are those in which pieces of broken glass with sharp angles are tolerated by the gastric mucous membrane without perforation resulting. Meisenbach[1] extracted a large number of articles including an ounce of broken glass (electric light globe) from the stomach of a professional glass-eater who styled himself "the Human Ostrich." W. S. Halsted[2] reports a case in which he extracted from the stomach of a professional glass eater 74 gm. of broken glass and 208 articles, consisting of 28 pieces of chain, 99 nails and 81 screws, knives, tacks, pins, etc. G. F. Inch[3] reported a similar case. A. H. Vandivert and H. P. Mills[4] report finding at necropsy of an insane patient, an amount of miscellaneous articles numbering 1,446 and weighing 2,268 gm. There were no signs of trouble with the stomach, digestion being good until a few days before death. These cases show the importance of a Roentgen-ray examination in such obscure conditions. In each instance such an examination would no doubt have revealed the source of the trouble.]

1. Meisenbach, A. H.: Gastrotomy for the Removal of Foreign Bodies in the Stomach, THE JOURNAL A. M. A., March 5, 1893, p. 313.

2. Halsted, W. S.: Contributions to the Science of Medicine, the Johns Hopkins Press, 1900, p. 1047.

3. Inch, G. F.: Am. Med., April 12, 1902, p. 603.

4. Vandivert, A. H., and Mills, H. P.: Foreign Material in the Stomach, THE JOURNAL A. M. A., Jan. 21, 1911, p. 180.

FRACTURE OF THE FEMUR INTO AN ACTIVELY TUBERCULOUS KNEE-JOINT

WITH HEALING OF THE FRACTURE

CHARLES A. PARKER, M.D.
CHICAGO

The following case recently under the care of Dr. Ridlon and myself appears to be of sufficient clinical importance to merit recording:

History.—The patient is a man aged 26, who has suffered more or less continuously from trouble in his right knee since he was 6 years old. It had been pronounced tuberculous. During the last two years he experienced a severe recrudescence of the trouble. In October, 1912, he fell on the knee and a diagnosis of fracture was made by the attending surgeon, and various treatments of the fracture and of the joint were carried out.

He came to our office March 18, 1913, wearing a cast and with a discharging sinus over the inner aspect of the knee. The knee was straight, swollen and had slight motion in flexion. There was more lateral motion and the joint was very sensitive. A roentgenogram was taken and a cast applied.

Figure 1 shows the type and extent of the fracture as well as the amount of destruction in the joint.

It is a typical supracondylar fracture of the femur with a vertical fracture through the external condyle down into the joint, and an oblique fracture extending 2 or 3 inches up into the shaft of the femur.

Whether or not there were more vertical clefts originally present, it is impossible to say from the picture. The picture shows some evidence of callus formation on either side of the femur overlapping the transverse fracture and a large posterior shadow that looks like callus, but without definite outline. The joint surfaces show a typical tuberculous picture. On account of the extreme tenderness of the part no attempt was made to determine the character of the union of the fracture; but the character of the joint and the age

Fig. 1.—Roentgenogram showing fracture of the lower end of the femur extending into the actively tuberculous joint.

of the patient, together with his appearance of suffering from chronic sepsis, influenced us to suggest amputation of the thigh as the best solution of the problem. This was agreed on and the thigh was amputated just above the lower third, April 3, 1913. The operation was performed at the Presbyterian Hospital. A large tuberculous abscess was opened when the muscles of the front of the thigh were cut, four or five inches above the joint. Its walls were removed together with considerable sound tissue and the whole surface sponged with tincture of iodin and the wound entirely closed, a small gutta-percha drain extending into the deeper parts through a stab wound in the posterior flap. Healing was prompt and uneventful.

The Specimen.—The soft tissues were removed from the specimen and the bone examined. Incidentally it may be noted that the region back of the joint, that is so definitely defined in the roentgenogram and appears as a deposit of lime-salts, showed nothing abnormal to the naked eye, although it was believed that a slight grating on the knife could be detected on scraping the cut surface. It consisted mostly of the popliteal fat in which there were no doubt calcareous elements, but not arranged so as to form any definite calcareous structure. The callus seen on either side of the femur in the roentgenogram was very slight and soft, but the union of all the parts of the lower end of the femur was so firm that no movement whatever could be detected in them on testing the strength in our hands; in fact, there was a definite firm bony union with good position and in the presence of an actively tuberculous joint (Fig. 2). A histologic study of the tissue taken from the region of the posterior shadow failed to show any lime deposits or other conditions that might produce such a shadow. An excess of lime-salt may have been present, but not in a form recognizable by histologic methods.

Fig. 2.—Section of lower end of femur in Figure 1, showing union of fragments.

Of course one instance is hardly sufficient on which to base a rule of practice, but it is the best evidence of what has occurred and in so much may influence us as to what may occur again. In other words, a fracture into an actively tuberculous joint can heal in a satisfactory manner, leaving only the original joint trouble for treatment according to the usual methods pursued in such troubles. Possibly another case may not progress so favorably as this case as far as the fracture is concerned, but this case certainly justifies us in expecting the bony union and a final healing of the joint in those cases in which the conservative healing of the joint is ordinarily indicated.

Another fact that should be emphasized in this connection is the presence of a shadow strongly suggestive of callus in a region in which operation demonstrates no callus to be present; or, in other words, what appears to be an insurmountable obstruction to flexion is in reality no obstruction at all.

7 West Madison Street.

The Value of a Pleasant Hospital Exterior.—In the description of a hospital a writer in *Country Life* says: "It is sometimes said that it is wrong to expend any money on the outside of a hospital, and that every halfpenny should be devoted to operating-tables and the like. This is surely a prejudiced idea. No building of a public sort should present a repellent front to the passerby; least of all, a hospital, which owes a smiling welcome to those who approach it with some sinking of heart. There are hospitals enough which suggest by their door faces, 'All hope abandon ye who enter here.' We need not be psychologists to recognize that none more than the sick need the subtle aid, not only of a happy environment within, but of the cheering welcome of an exterior that is homelike rather than 'institutional.'"

A CASE OF SPOROTRICHOSIS

L. A. Dermody, M.D. and C. McMartin, M.D., Omaha

Mrs. G. G., aged 35, born and residing in Nebraska, with family and past history of no importance, noticed in November, 1913, what she termed a "red welt," pea-sized, oblong and painless, on the dorsolateral surface of the middle finger of the left hand. She can recall no trauma immediately preceding the lesion or at any time previous.

In from four to seven days after the appearance of the "welt," suppuration took place. The pus had no unusual color. One week later the patient noticed a red line extending up the extensor surface of the forearm as far as the elbow. This red line remained one week, gradually faded, and along the exact course it had taken she noticed a number of nodules just beneath the skin, not painful, from the size of a large shot to that of a cherry. These nodules extended about half way up the arm above the elbow, following definitely the course of the superficial lymphatics. There were never more than twelve or thirteen nodules. At this time she consulted her local doctor (about three weeks after the appearance of the initial lesion on the finger). The nodules were gradually growing larger and assuming a purplish color, but were not painful, nor had they suppurated. The physician incised the lesion on the finger, evacuated some pus and applied a moist dressing. Three weeks of this treatment gave no benefit and the patient felt that she was growing worse.

She came to Omaha and on Dec. 26, 1913, the nodules were opened, curetted and cauterized with phenol (carbolic acid) followed by alcohol. Temporary improvement took place, but at the end of two months the patient returned home with the areas of infection draining freely. Three months after this she returned with no improvement. No new nodules had developed.

Sporotrichosis lesions.

At this time Dr. McMartin saw her and made a diagnosis of sporotrichosis. Cultures from the pus were made. A 2 per cent. glucose-agar showed at the end of five days a pure culture of sporo.richa, spores predominating. A bouillon culture at the end of five days exhibited abundant growth, mycelium forms predominating.

April 16, 1914, the patient was anesthetized, and a number of curvilinear incisions made, each one exposing two or three of the nodules. These areas were thoroughly curetted, the skin undermined and the flaps stitched back, exposing the infected fields. One hour each day for three successive days the arm was exposed to the sun's rays. At the end of that time a healthy granulating surface had appeared and the flaps were loosened and sutured in place. The wounds were irrigated daily with 50 per cent. Lugol's solution until almost healed. A daily dressing of Lugol's solution was also applied. Gradually increasing doses of potassium iodid were administered until 60 grains daily were being taken. At the end of three weeks the patient was allowed to return home with the arm entirely healed except for one small area which was rapidly closing.

A further report from the patient since leaving the hospital states that the arm is long since healed and is now perfectly well.

2 Creighton Block—419 Brandeis Building.

REPORT OF A CASE OF CEREBRAL HEMORRHAGE

Walter W. Mott, M.D., White Plains, N. Y.

History.—The patient, a girl aged 3, had always been healthy. At 3 p. m., June 18, while playing, she accidentally stepped backward and fell down several steps, striking her head on a stone sidewalk, the exact manner of falling not being observed. She was able to stand up and walk, and after crying for a short time, she drank some water and went to sleep naturally. She awoke about 4:30 p. m., vomited several times, and appeared dazed. She did not recognize her mother. A slight twitching of her left arm was noticed. I first saw the patient at 5 p. m. The only evidence of external injury was a contusion over the right mastoid region. Pulse was 140, weak but regular. Respirations were irregular and shallow, seven or eight a minute. There was no bleeding from mouth, nose or ears. Pupils were equal, dilated and reacted sluggishly to light. There was no strabismus. By 5:30 p. m. the pulse was weaker and from 170 to 180 a minute. Respirations were even more shallow and irregular. There were convulsive movements of the left arm and leg, the eyes were turned to the right, and the pupils did not react. The lesion was evidently, therefore, an intracranial hemorrhage causing a rapidly increasing cerebral compression, with the focus of the damage over the motor cortex of the right hemisphere. Immediate operation was decided on, and the child was removed to the hospital, a short distance away.

Operation.—The head was shaved and tincture of iodin was applied over the right side. By this time no pulse could be detected at the wrist, the convulsive movements on the left side were almost continuous, and the respirations shallow and sighing. No anesthetic was given. A horseshoe incision was made in the scalp over the right temporal region, and a flap turned down. A trephine opening was then made in the skull over the site of the middle meningeal artery. On removing the button of bone, this artery was found intact. The dura bulged slightly, was blue, and did not pulsate. A small incision in the exposed dura showed oozing from beneath the posterior edge. The trephine opening was enlarged posteriorly with rongeur forceps, and the incision in the dura extended in the same direction. This exposed the site of hemorrhage, a rupture in the ascending frontal branch of the middle cerebral artery. As soon as the subdural pressure was relieved, the twitching of arm and leg ceased, the respirations became regular, and the radial pulse became palpable. The hemorrhage was profuse, and persisted in spite of gentle pressure with gauze. The lesion was given better exposure by a short incision in the dura bisecting the original line, and ligatures of fine plain gut on a round curved needle were passed beneath the artery on either side of the rupture, and tied. These controlled the hemorrhage perfectly. A narrow gauze wick was then carried down to the ligated artery, and the other end brought out through a stab in the flap. The dura was closed about the drain with sutures of fine plain gut, and the scalp and pericranium closed with interrupted sutures of silkworm-gut. The patient was awake and crying when the scalp sutures were inserted.

Postoperative Course.—The patient made an uneventful recovery. The drain and sutures were removed on the fifth day, the wound healing cleanly. She left the hospital on the tenth day, and since then has been perfectly well.

SUMMARY

1. The case was one of rapidly advancing cerebral compression, caused by hemorrhage from a branch of the middle cerebral artery.

2. The distinct "free interval" after the injury, and the later rapid increase in the severity of the symptoms, distinguished the condition from one of cerebral concussion.

3. The injury to the artery was caused by indirect violence, the blow on the head apparently being sustained over the right mastoid region.

4. The convulsive movements on the left side of the body pointed to a lesion involving the motor cortex of the right hemisphere.

New Instruments and Suggestions

A RECORD CARD FOR THE ANESTHETIST

PAUL J. FLAGG, M.D., NEW YORK
Instructor in Anesthesia, Fordham University Medical School

Those who administer anesthetics sooner or later find it essential to preserve a fairly comprehensive record of each case. This becomes necessary not alone from a scientific point of view, but also for self protection.

NAME DATE OF OPERATIONS No.
AGE SEX ADDRESS
NAME AND ADDRESS OF NURSE
OPERATION
SURGEON ASSISTANTS
UNCONSCIOUSNESS AFTER OPERATION 10 min. PREVIOUSLY ANAESTHETIZED 1 N. O
CONDITION OF EYES AFTER OPERATION OK CHAR. OF INDUCTION Quiet Moderate
P. TEETH / LOOSE CONDITION, RIGIDITY, CLENCHING, INJURED, VOMITING DURING, DURING, AFTER
ANAES. SUCCESS a OK p. OK a OK
REMARKS:
CHARGES: BILL SENT: PAID:

Fig. 1.—Front of anesthesia record card.

System Anesthesia		Close & Open				
Apparatus Used						
N 2 O+O		3 bags				
ETHER		3 oz	2 oz			5 oz
CHLOROFORM						
M & A.	1/4, 1/80	at	10.15 A.M.			
OXYGEN						
Stimulants						
Respiration		f o f f f f				
C. REFLEX		d. o o d d s				
PUPIL		d c c c c d				

PULSE CURVE DURING ANESTHESIA

	BEFORE ANES. BEGAN	ANESTHESIA BEGAN	1ST HR. 20 40 60	2ND HR. 20 40 60	3RD HR. 20 40 60	DISCHARGED RETURNED
180		A.M.				A.M.
170		P.M.				P.M.
160						
150						
140						
130						
120						
110						
100						
90						1.50
80						
70	10.30	10.40				
60						

TOTAL TIME OPERATION 1.50 ANAESTHESIA 2.00
ANAESTHESIA BEFORE OPERATION .10

Fig. 2.—Reverse of anesthesia record card.

It is frequently inconvenient to gather personal data at the time of the operation. To avoid this embarrassment a record card and a self-addressed, stamped envelope may be left with the nurse, who is usually glad to secure the desired information. The accompanying figures illustrate such a card.

The front of the card (Fig. 1) requires but little comment.

Char. of Induction:—Excitement absent, moderate, marked.

Anaes. Success:—S.—Point of view of the surgeon; P.—of patient; A.—of Anesthetist.

Heads for data which are absent should be crossed out.

On the reverse of the card (Fig. 2) attention may be directed to the following points:

System of Anesthesia: Open, closed, pharyngeal, intratracheal, intravenous, rectal, etc.

M. & A.: Morphin and atropin.

Respiration: free, obstructed.

C. Reflex: sharp, dull, absent.

Pupil: normal, contracted, dilated.

Most records are squared off for five-minute pulse-readings. To save space twenty-minute divisions are here used. Five-minute readings may be shown by a dot one-fourth way across the space. These cards may be had from the Surgical Narcosis Supply Co., 13 East Fourteenth Street, New York City.

This record is original only in its arrangement. I wish to express my thanks to Dr. E. M. Hawks and Dr. F. Montgomery for their kind suggestions.

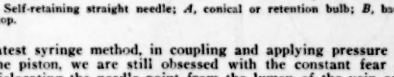
120 Central Park South.

A SELF-RETAINING NEEDLE FOR ADMINISTERING SALVARSAN INTRAVENOUSLY

HENRY EICHEL, M.D., NEW YORK

Those of us who have been giving salvarsan or other closed venous infusions have each developed a preference for a certain needle, which seems to us best fitted for the work in hand. Some of us swear by the straight needle, others are partial to the curved or one of the many modifications of either, and in all cases the esteem in which we hold our special form of needle is the result of the ease with which we seem able to manipulate it.

Not many physicians can give 120 to 200 c.c. of solution by gravity without experiencing a feeling of impatience at having to hold the needle in a fixed position in fear of its slipping out of the vein. And even when employing the



Self-retaining straight needle; *A*, conical or retention bulb; *B*, backstop.

latest syringe method, in coupling and applying pressure to the piston, we are still obsessed with the constant fear of dislocating the needle point from the lumen of the vein and getting an infiltration into the adjacent tissues. This uncertainty and its consequent complications can be obviated by the use of a self-retaining needle. The object of this paper is to describe the principle on which any of the existing needles may be modified and made self-retaining.

DESCRIPTION OF NEEDLE

On an ordinary needle about one-quarter to five-sixteenths of an inch from the base of the cutting edge is a conical bulb beginning flush with the sides of the needle, becoming larger gradually till its diameter is about one and one-half times that of the needle and its length is one-eighth of an inch. This might be called the "retention-bulb" (*A* in illustration). A larger globular-shaped bulb, about four times the needle's diameter is placed about one-eighth of an inch distant toward the coupling end. The shape of this "back stop" is of little importance (*B* in illustration).

My own preference is for the straight needle, and I shall therefore describe my method of operation with this improved needle. I puncture the skin and enter the vein, pushing the needle in as far as the "retention bulb," then make a half turn of the needle on its long axis and push to bury the bulb. The bulb becomes firmly fixed in the skin and the needle becomes stationary and practically immovable. This method of fixing the needle may be compared to the venous infusion cannula in which the dilatation is tied within the vein. Here, however, the skin being elastic permits the entrance of the retention-bulb, which is firmly grasped, but does not enter the vein.

I prefer the straight needle because I like to feel that the possibility of puncturing the posterior wall of the vein is at a minimum, and turning the needle, which you can do only with a straight one, accomplishes this end. When the needle point is presenting in the vein, by turning it, the point, being eccentric, is shifted from the line of punc-

ture and puts the cutting edge of the needle parallel to the vein's posterior wall, thus lessening the possibility of passing beyond the venous wall when the retention bulb is pushed under the skin.

CONCLUSIONS

This self-retaining principle, therefore, has the following advantages:

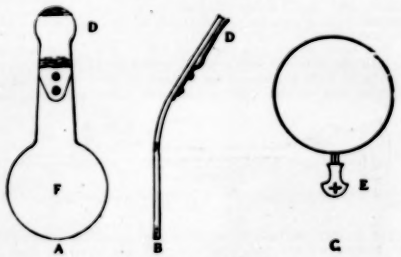
1. It may be applied to any needle.
2. It minimizes the nervous tension on the part of the operator due to the necessity of holding a needle immovable in one position for a tediously long time.
3. The needle cannot be dislocated while it is being coupled to the syringe.
4. Pressure applied to the piston will not dislodge the needle-point.
5. By freeing the hand that would ordinarily be fixed in holding the needle, one may even dispense with the services of an assistant.

54 West One Hundred and Nineteenth Street.

A HANDY MOUTH-FINGER

EDWARD M. MIKKELSEN, M.D., Winnetka, Ill.

It is always difficult, in examining or removing foreign bodies from an eye, to hold the lids apart, focus the condenser, and manipulate a spud or other instrument, all with the fingers of two hands. This led me to devise the little instrument shown in the accompanying illustration.



A handy mouth-finger.

To operate, place shank *E* of condenser under spring clip *D* of mouth-finger, swinging condenser either to right or left, depending on which eye is most convenient for work intended.

Place mouth-piece *F* of instrument between lips and under tongue, without applying teeth to it. The condenser should have a focus of about 2½ inches, which is about 12 or 14 diopters. This gives a working distance between the eye and that of the patient of about 5 to 6 inches. Focus and distance takes care of itself automatically after one becomes accustomed to the instrument, leaving both hands free to do what is necessary.

The instrument is made of aluminum, which leaves no metallic taste in the mouth. The spring clip is made of German silver and the rivets of brass, all non-corrodable on boiling or washing. The instrument is light, fits the vest pocket without bulging, and is a companion piece to the condenser.

A SELF-RECORDING DEVICE FOR TESTING THE COLOR SENSE

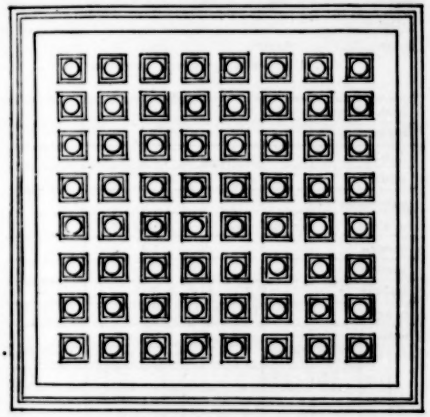
J. ELLIS JENNINGS, M.D., ST. LOUIS

For many years the Holmgren colored worsteds have been used by the railways and marine service of the United States and most foreign countries to test the color sense of their employees. When properly used, according to directions, this test has proved to be practicable and reliable. The most serious objections to it are:

1. The worsteds become soiled by constant handling so that the more delicate shades can hardly be distinguished one from the other.
2. The method of recording the skeins selected by the candidate is crude, laborious and liable to lead to error.

In order to overcome these objections I have constructed a test in which the worsteds are not handled and the candidate makes a permanent record of his own color sense. It consists of a square box divided into an upper and a lower half, each half having a lid—virtually two shallow boxes with bottoms joined together. The upper side of the box is marked "Test No. 1 Green," and contains a color board made up of all the different colors, shades and tints likely to be mistaken by the color-blind for green. The lower side of the box is marked "Test No. 2 Rose," and contains a color board made up of all the different colors likely to be mistaken by the color-blind for rose. The color boards, like the box, are absolutely square and each contains sixty-four patches of worsteds of various colors and shades, making a total of 128 colors used in the test.

In each patch of colored worsted is a circular opening in the color board which is for the purpose of registering the particular patch of color chosen by the candidate. This he does by inserting a pointed pencil of wood or metal through the opening and punching a hole in the record sheet which had previously been placed beneath the color board. The position of the patches of color and the circular openings have been arranged in an absolutely symmetrical design, so



Jennings' self-recording color-test.

that when the box is turned in any one of four positions the same appearance is presented and it is impossible to say which is top or which is bottom. The openings of the color boards are so arranged that the records of both the green and rose tests are made on a single sheet.

METHOD OF MAKING THE TEST

The cover marked No. 1 is removed, the color board lifted out, a record blank inserted and the color board replaced. Care must be taken to see that the mark "top" in the box, "top" on the back of the color board and the top of the record blank all correspond. The box is now turned around several times until all sense of direction is lost.

The green test skein fastened to the inside of the box cover is placed at a distance of 2 feet and the candidate is given the pointed pencil and requested to look along each row of colored patches and when he sees the test color or one of its lighter or darker shades, he is to place the point of the pencil in the opening and punch a hole in the paper beneath. Having completed Test 1, the cover is replaced and the box turned over, exposing Test 2, the rose. The record blank having been inserted and the rose skein displayed, the test proceeds as before.

ADVANTAGES

1. The candidate makes a permanent record of his own color sense.
2. The soiling of the worsteds by constant handling is avoided.

3. The worsteds are divided into two groups: in the first group are placed all the colors mistaken for green by the color-blind; in the second group are placed all the colors mistaken for rose by the color-blind.

4. The comparison of colors by placing two or more together is avoided.

5. The large number of colors used, 128, gives free scope in the detection of all cases of color-blindness.

6. The small size of the color patches, while ample to show the color to the normal eyed, may lead to the detection of a central color scotoma.

7. The tedious method of recording the color sense by pulling out a concealed bangle and writing its number on a blank is avoided.

8. An important color cannot be lost.

9. On account of its symmetry it is absolutely impossible for any but those with a perfect color sense to pass the test.

10. It is the only method by which uniform results can be obtained whether the examination is made by the physician or by the layman.

11. Two or more records of the examination can be made at the same time and the official at headquarters is able to see exactly what colors have been selected to match the test skeins.

I am indebted to Dr. Charles H. Williams of Boston for suggesting the method of threading the worsted.

508 Carleton Building.

A NEW PETRI DISH COVER

C. C. YOUNG, M.S., Lawrence, Kan.
Director, Kansas State Water Survey

The ordinary porous Petri dish top has not given satisfaction in our water laboratory. In an attempt to eliminate the troubles a glaze was put on the outside of a few covers for experimental purposes. We were so pleased with the improved results obtained that hereafter porous tops with glazed outer surface will be used entirely in this laboratory.

These glazed covers combine the good features of both the glass and the ordinary porous tops. They are superior to the unglazed tops in many ways and the cost is no greater.

1. Evaporation of the water from the medium is reduced about 60 per cent., but they are still porous enough to absorb all water of condensation.

2. The glass bottoms are not scratched and ground when the plates are stacked in the incubator.

3. The glazed surface affords a convenient place for marking with a wax pencil. The marks can be rubbed off as easily as they can from glass.

4. The glaze adds much strength to the cover; consequently the breakage is reduced to a minimum.

5. They slip one over the other as easily as glass.

6. There is less danger of contamination, as the glaze protects the porous part of the cover so that material spilled on a plate is not absorbed.

The advantages of this new cover over the old appear to be sufficient to warrant all laboratories filling in their stock with this type.

UMBILICAL CORD OR FUNIS RETRACTOR

W. P. MEGRAIL, M.D., WHEELING, W. VA.

There is probably no more serious or fatal complication to the child during its birth than prolapse of the umbilical cord, which renders an otherwise easy and safe birth one of greatest danger to the life of the babe.

Also there is no other place in which the obstetrician finds himself so helpless to save the life of the child if unprepared for this complication when finding on examination a presenting, pulsating umbilical cord, and a half dilated rigid cervix.

There is usually no sterile catheter at hand, or if there is, it is difficult to thread it with a tape quickly and the babe is going to die in a few minutes unless the umbilical cord is promptly placed where it will be out of the way of the oncoming head.

This simple instrument is constructed of spring steel; 12 inches in length, 5/16 inch in width at the narrowest part, and about 1/60 inch thick except at both ends, where it is 1/8 inch thick, and rounded to prevent the danger of producing a puncture or laceration.

At one end there is a half circle crotch, ¾ inch in diameter, containing a number of serrations on the inner circle so that it will hold the cord and carry it up into the uterus beyond danger of compression, or if the operator prefers he can use the other end of the instrument and thread it through one or both holes with a tape or strip of narrow bandage and pass it around the cord in the same manner as with the whalebone fillet or the modern catheter or bougie.

The advantages of this instrument are:

1. It can be perfectly and rapidly sterilized.
2. It is quick and easy of application.
3. It combines two instruments in one.
4. It is flexible and will adapt itself to any curve, and yet it occupies less space in the pelvis than a catheter.

Umbilical cord retractor

5. It is inexpensive, light in weight and occupies no space in the obstetric bag, where some appliance should always be found ready for this emergency.

6. It may also be used with advantage in passing a tape around a foot or leg in doing an internal version.

SELF-RETAINING COLLAPSIBLE T-SHAPED CATHETER FOR SUPRAPUBIC DRAINAGE OF THE URINARY BLADDER

W. L. CHAPMAN, M.D., PROVIDENCE, R.I.
Surgeon and Pathologist to St. Joseph's Hospital

At the left of the illustration the catheter is shown folded pencilwise in the grasp of an ordinary dressing or dissecting forceps ready to be introduced into the suprapubic incision. When the forceps is withdrawn the catheter immediately springs into position with but slight adjustment. Withdrawal is easy on account of the soft material of the catheter. At *A* and *B* are shown the oval apertures for drainage which may be readily enlarged with the scissors if desired. In case larger drainage openings are needed the ends of the T arm may be snipped off. The catheter is practical, does not readily become clogged, allows but little leakage around it, may be removed or reinserted with but little pain to the patient, and may be used for prostatic as well as suprapubic drainage. It is made for me by the Davol Rubber Company of this city and may in a short time be obtained from dealers.

Self-retaining catheter for suprapubic drainage of the bladder.

254 Benefit Street.

Hydrobromid of Quinin in Whooping Cough.—I have had a pleasing experience in the use of neutral hydrobromid of quinin (gr. v four times a day in adults). It allays the spasmodic cough, relieves the sense of depression and conduces to rest. It seemed rational, that if it produces so happy an effect, as it often does in Grave's disease, it would be of service in whooping cough and it has proven so with me.—E. A. Hildreth, M.D., Wheeling, W. Va.

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SATURDAY, SEPTEMBER 19, 1914

RELATION OF VACCINE VIRUS TO POST-VACCINATION TETANUS

From time to time cases of tetanus following vaccination are being reported. These infections have been attributed to various causes; carelessness on the part of the operator, infection of the vaccination wound by uncleanly habits of the patient, a vaccine virus contaminated with tetanus, and, at times, a tetanus-infected wound of another part of the body received about the time of vaccination.

The Pennsylvania State Vaccination Commission[1] have reported on the relation of vaccine virus to tetanus following vaccination. They have given the subject much attention and some important facts have been determined. Of especial interest were the data with regard to the period of incubation and the case mortality of tetanus following vaccination, as compared with tetanus in general. It was shown before the commission that of 870 cases of tetanus studied by Anders and Morgan, the disease developed in 568 between the first and tenth days after infection. In 302 cases the incubation period was from ten to twenty days or more. Of the 568 cases with an incubation of ten days or less, 419 were fatal, giving a mortality of 73.8 per cent. Of the 302 cases with an incubation period of more than ten days, 45 patients died, a mortality rate of only 11.5 per cent.

The significance of these figures, in their bearing on vaccinal tetanus, is at once obvious. The great majority of cases of vaccinal tetanus have an incubation period of over two weeks, counted from the date of vaccination, while the fatality of vaccinal tetanus is 78 per cent., as shown by Wilson's[1] 52 cases. This closely corresponds with the mortality of 73.8 per cent. found by Anders and Morgan for tetanus with an incubation period of less than ten days, and hence lends much weight to the assumption that cases of vaccinal tetanus contract their infection subsequent to vaccination and not from the vaccine virus.

These data and the inferences drawn therefrom, however, while extremely suggestive, are not convincing unless supported by other data, such as laboratory experiments. These latter, up to the present, have been lacking in a measure. In a recent bulletin of the Hygienic Laboratory, however, Francis[2] reports the results of extensive laboratory studies on tetanus, especial attention being given to the relation of vaccine virus to tetanus.

Under the Federal law regulating the manufacture and interstate sale of viruses, serums, etc., it has become necessary to examine a large number of samples of vaccine virus. Since the law went into effect, in 1902, there have been examined in the Hygienic Laboratory over 1,500,000 doses of vaccine virus with especial reference to the presence of tetanus spores. In not a single instance has the tetanus bacillus or its spore been found in vaccine virus.

In many instances, samples of vaccine virus of the same lot as that used in cases of vaccinal tetanus have been examined, but the result was negative for the presence of the tetanus organism. For this reason, and to be sure of his materials, Francis resorted to artificial contamination of vaccine, in order to carry out his experiments. He discusses well-known difficulties encountered in growing tetanus bacilli from vaccine virus, and shows that no single cultural method or animal test will invariably detect the presence of tetanus, but that a combination of different methods is effective.

A number of attempts were made to infect monkeys with tetanus by vaccinating them with a virus which had been heavily contaminated artificially with tetanus spores, but in no instance did the animal develop tetanus, although typical takes were produced. From these experiments it would appear that even if virus contains tetanus organisms, it is improbable that infection with tetanus will follow. The great importance of guarding the vaccination site from contamination cannot, therefore, be too greatly emphasized. Interesting information is given with regard to the results of cleanliness in collecting vaccine virus from a calf that had been vaccinated with virus artificially contaminated with tetanus spores. After carefully washing one portion of the vaccinated area with sterile water and brush, the virus was collected under aseptic conditions from the washed area and also from the unwashed part. The virus from the unwashed area showed, when examined culturally, tetanus in 100 per cent. of the cultures, while cultures from the washed area gave only 22 per cent.

If washing the vesiculated skin of the calf's abdomen with sterile water is sufficient to remove 75 per cent. of the tetanus spores artificially implanted thereon, it would certainly seem that before vaccinating, we should be able to remove 100 per cent. of tetanus spores from the smooth skin of the arm, should

1. Report of the Pennsylvania State Vaccination Commission, March, 1913.

2. Francis, Edward: Laboratory Studies on Tetanus, Bull. Hyg. Lab., 95, August, 1914.

they chance to be present. With a tetanus-free virus and a tetanus-free site for vaccination, and with reasonable after-care, there should be no vaccinal tetanus.

In spite of the evidence submitted by Francis, we should not neglect rigid asepsis in performing vaccinations in the belief that the vaccination sore will not absorb tetanus infection. His work should serve as a warning to us not to be too ready to put blame on the virus, the operator or the patient if we should be so unfortunate as to have a case of tetanus following vaccination. To put the blame in the wrong place does not alleviate the suffering of the patient or relatives in the least. It does allow a case to go into medical history which leaves the true avenue of tetanus infection unsuspected, to cause perhaps a repetition in another case at some future time.

Most of the accidents associated with vaccination can be attributed to the failure on the part of the physician or patient to realize that vaccination is a surgical operation and that the vaccine wound is a wound that must receive the same care and asepsis that any other operation wound should receive.

THE ADJUSTMENT OF THE DIETARY TO ECONOMIC CONDITIONS

The migration of a large fraction of the population of the civilized parts of the world from the country to the cities is one of the phenomena attending the "industrialization" of modern nations. Whereas formerly the city was essentially a center for trade and office life, of late the factory with its large working population has become an adjunct of city life. From the point of view of nutrition, which plays a dominant part in determining the fitness of the individual for work, it is unfortunate that the less opulent laboring classes should be drawn away from the region of cheap food in the country to homes where new standards of living are imposed on them. The altered distribution of the population has brought with it certain problems of nutrition that cannot be dismissed as inconsequential or solved by restrictive legislation. Economic laws sometimes are far more effective than educational propagandas or governmental interference.

The industrial worker who migrates from the country to the city, like the immigrant, soon finds that he must alter his accustomed diet. The simplicity of an adequate diet obtainable in the country regions cannot readily be continued in the city. The cheapest articles of food, such as bread and potatoes, available in the larger centers, do not satisfy the protein requirements sufficiently as a rule. But even if cheap forms of protein were procurable, the demand for a special source, namely, meat, soon becomes a dominating factor in the selection of the ration. Meats, whether of mammals, birds or fishes, have always entered prominently into the dietary of the well-to-do; and in this country, where the tendency to wipe out the distinctions between social classes is always in operation, the poor and the less favored groups are continually striving to imitate the ways of their more fortunate neighbors. A national sentiment fosters this ambition in a country where "every man is a king." The urban workman wants good cuts of meat not because they are absolutely indispensable to health, but because the example of his neighbor has encouraged the habit. It is quite different on our farms and in rural communities, where local produce enters more largely into the home.

With an impending rise in price and increasing scarcity of meat making itself felt throughout the country, and with the growing tendency of the industrial workers coming from the country to the cities to try to provide the table which is demanded by their well-to-do neighbors, a household problem inevitably arises. Either the dietary habit must be materially changed to include a different type of ration—a scheme almost impossible of accomplishment where food customs are in part dictated by usage—or retrenchment in expenditures must be sought in some other way.

At present the cheapest articles of food include potatoes, peas and beans, and certain cereals in the form of coarse bread; cabbage forms a cheap green vegetable; among animal products, milk and cheese are comparatively inexpensive; fish furnish the cheapest forms of flesh foods; and dried apples are among the cheapest fruits. Expensive butter can be in part replaced advantageously by less expensive, yet thoroughly wholesome animal and vegetable fats. Beef, which is always expensive, might well be replaced more liberally by fish than it has been in the past. Without having statistics at hand to support the statement we nevertheless venture the opinion that the popularity of fish is growing rapidly in America. Potatoes are not yet competing with the cereals as extensively as they might well do; but cheese is likely, as we have intimated before,[1] to find increasing favor.

The adequate dietary is a decidedly flexible affair, and it is well that this fact should become widely inculcated. The idea that even radical departures from acquired food habits are likely to lead to nutritive disorder and decreased efficiency needs to be eradicated. The foods of nations vary widely and yet support creditable human specimens. When once this fact is thoroughly appreciated there will be less dismay when a rise in the price of some supposedly indispensable product is announced. The adjustment of the dietary to the pocketbook will be further facilitated when intelligent marketing becomes recognized as a household art that deserves cultivation.

1. Cheese—a Neglected Nutrient, editorial, THE JOURNAL A. M. A., April 6, 1912, p. 1016.

SODIUM VERSUS POTASSIUM COMPOUNDS

The beds of potassium salts in Stassfurt and other localities in Germany have been shut off from commerce by the war, and we are threatened with a shortage of potassium salts. As the supply of sodium salts is practically inexhaustible in this country, why should we not prescribe them? While many of us in prescribing the bromid have fallen into the habit of prescribing potassium bromid, we know of no reason why sodium bromid would not be just as good, at least in practically all cases.

Though it may be difficult to get out of the habit of prescribing potassium iodid, it is doubtful whether it is any more effective than sodium iodid. Sodium acetate could easily be substituted for the potassium acetate. The potassium salts are slightly more stable than the sodium salts, but in general the salts of the one base have no marked therapeutic advantage over the corresponding salts of the other. The pottasium compounds are more active and are said to possess a more marked diuretic effect; but the sodium salts are less depressing to the heart and in some instances less disagreeable to the taste.

In this matter we have to consider the therapeutic effect, the side effects and the pharmaceutical reasons for preference of one salt over the other. In the case of the bromids and the iodids the therapeutic effect is derived from the negative element; that is, iodin or bromin. This being the case, it is a matter of indifference whether we use potassium bromid or sodium bromid, or whether we substitute sodium iodid for potassium iodid, except that the relative amount of iodin and bromin is a little greater in the sodium compounds than in the potassium. With regard to side effects, sodium compounds are thought to be less irritating to the stomach, and in large doses potassium bromid or iodid might be somewhat more depressing to the heart. With regard to physical properties, sodium iodid and bromid are less permanent in the air, but this concerns the pharmacist more than the physician, as these salts should be prescribed in solution.

Potassium acetate and citrate are used as diuretics, but can be conveniently replaced by sodium salts, as the therapeutic aim is reached just as well by prescribing sodium citrate or acetate as by the use of the corresponding potassium salts. Here there appears to be no difference on account of side actions or of physical properties.

It seems possible that the vogue of the potassium compounds has a historical cause, and is at present due largely to habit. The earliest source of sodium carbonate, from which most of the other sodium salts are derived, was the ashes of seaweeds; the earliest source of potassium carbonate was wood ashes. Wood ashes were plentiful and cheap, inland as well as on the seacoast; hence the natural preference for potassium compounds. It is of interest now to recall that the first impetus to the general employment of sodium salts was given by another devastating war. During the French revolution the important soap industry in France was seriously crippled because all the available potash in France was required for gunpowder, and the importation of soda-ash made from kelp and wrack was suspended. A prize offered by the Directory for the best method of producing sodium carbonate from sodium chlorid was won in 1794 by Le Blanc. The sodium carbonate produced by his process, however, was not cheap enough to withstand the competition of the Spanish kelp-ash, which was imported into France as soon as commercial relations with other countries were reestablished, and the unfortunate Le Blanc died by his own hand in a poorhouse. The value of one of its by-products, hydrochloric acid, saved the Le Blanc process from extinction, and it is still extensively used in Great Britain; but the price of sodium carbonate did not become reduced to anything like its present level until the Solvay process came into general use in the latter part of the nineteenth century.

How much effect, if any, these commercial factors have had on the therapeutic use of potassium compounds is not easy to prove. It seems probable, however, that the original high cost of sodium carbonate, the source of most other sodium compounds, has not been without influence on pharmacy. The pressure of necessity caused by the present war probably will have the effect of rationalizing this branch of our therapeutics. The sodium salts, being less irritating than those of potassium, will be given the preference except in cases in which the latter are specifically indicated.

INDUSTRIAL HEALTH

The importance of the problem of industrial sanitation is gradually becoming more fully realized. Some employers, indeed, even yet apparently take the ground that, if workmen are willing to labor under insanitary conditions, it is no concern of their employers. The New York State Factory Investigating Commission, which has carefully studied the conditions under which about two hundred thousand wage-earners work, reports that "there is a tendency on the part of many employers to economize not only in matters of legitimate expense but also in space, light, air, and certain other safeguards to the health and lives of the workers." The report of the State Board of Health of Louisiana indicates that over 50 per cent. of all the manufacturing establishments in the state are in "poor" or "bad" sanitary conditions. Most states have no available figures, but New York and Louisiana are so far from each other geographically, economically and socially, that, for lack of better, we may take these two reports as an index of industrial health conditions generally throughout the United States. On the whole,

however, we believe that with each year employers tend to appreciate more and more the commercial value to them of sanitary working conditions for their employees.

B. S. Warren of the United States Public Health Service, who has been deputed as sanitary adviser to the United States Commission on Industrial Relations, points out[1] that the false economy involved in neglect of sanitation inevitably leads to greatly lessened efficiency and is thus really expensive for the employer in the end. The highest efficiency is possible only when the health of workers is favored by good air and light, proper arrangement of hours of labor and the maintenance of the safeguards of health.

With regard to hours of labor particularly, some recent experience is valuable as indicating that shortened hours of labor may actually conduce not only to the health of employees but also to greater production. In the Engis Zinc Works the hours of labor were cut down from twelve to eight per day, yet the men earned as much and did as much work in eight hours as they did formerly in twelve. Besides there was a marked decrease in the calls on the sick fund, the men no longer felt the need of stimulation, and sobriety was markedly increased. Almost the same thing happened at the Zeiss Optical Works in Germany. Abbe kept a careful record for the years when the plant was operating on a nine-hour day. When the working day was reduced to eight hours, the record showed the men earned over 3 per cent. more than during the previous year, the output of the work was increased 3 per cent. and the power-plant was able to shut down an hour earlier, thus effecting a very material saving in fundamental expense. The record was for 233 men at an average age of 31 years, and many different occupations on a piece-work basis were represented in the shop.

Both employers and employees need to be convinced of the evident fact that the healthy man is the most efficient and the cheapest employee and that any reasonable expense to maintain him in health is a profitable investment. The public health worker can act as a mediator between capital and labor and aid greatly in the amicable adjustment of the prevalent industrial strife. Warren suggests that it is regrettable that medical men have neglected so long to teach methods of disease prevention. "Their study must include the total environment and, if possible, untangle the bundle of influences that in effect are producing disease more surely than the germs which are the direct agents." Physicians as impartial investigators can present the facts and suggest the remedies to both sides and thereby accomplish great good for social improvement and public health.

1. Warren, B. S.: Industrial Conditions, Their Relation to the Public Health, Pub. Health Rep., May 29, 1914, p. 1348. Paper read before the Health Officers' Conference of the State of Louisiana.

METABOLISM IN FEVER

The construction of the ideal dietary schedule for fever patients will not be accomplished until the nature of the disturbance of metabolism in diseases attended with rise of body temperature is clearly ascertained. It is agreed that the increase in total metabolism in fever is ordinarily associated with increases in protein metabolism. The cause of the latter, however, has given rise to much speculation and contradictory views. At least three explanations of the higher catabolism of protein have been ventured. First, it has been ascribed to the high temperature. We have previously referred to the investigations of Graham and Poulton[1] on this point. Living on a ration abundant in carbohydrates whereby they easily reached a low plane of nitrogenous equilibrium, these investigators subjected themselves to heated steam sufficient to raise their body temperature to as high as 40 C. (104 F.). During this artificial state of high temperature no alteration whatever in protein metabolism was noted; therefore the physical factor of rise in body temperature cannot be postulated as the primary cause of the considerable and constant augmented destruction of protein noted in true clinical fevers.

As a second cause of the increased protein metabolism noted in fevers an alleged condition of undernourishment of the body cells has been postulated, an impoverishment of the store of glycogen in particular being held responsible. It is, of course, a well-known fact that lack of carbohydrate occasions increased destruction of protein in the organism under any condition. It was the distinct merit of Shaffer and Coleman in this country to have attempted to forestall the depletion of the non-protein energy reserve of the body in typhoid fever by instituting their now widely known high-calorie feeding in this disease.[2] With a diet abundant in carbohydrate and fat it was shown that, even with a low protein intake, patients may be maintained in almost complete nitrogenous equilibrium throughout the duration of the typhoid infection. The brilliant results achieved raise the question whether the success is due to the provision for a compensatory regeneration in the organism or to a prevention of what may here be referred to as the third possible cause of protein catabolism in fever, namely, destruction of protein by the action of the special toxins produced.

Dr. Rudolph A. Kocher[3] of Baltimore, working in Friedrich Müller's clinic at the University of Munich has questioned the interpretation of the results of Shaffer and Coleman. He notes that the excellent

1. Graham and Poulton: Quart. Jour. Med., October, 1912, p. 8. Metabolism in Fever, editorial: THE JOURNAL, A. M. A., Dec. 7, 1912, p. 2070.

2. Shaffer, Philip A.: Metabolism in Typhoid Fever, THE JOURNAL A. M. A., Sept. 19, 1908, p. 974; Shaffer, Philip A., and Coleman, Warren: Protein Metabolism in Typhoid Fever, Arch. Int. Med., Dec. 15, 1908, p. 538. The Utilization of the High-Calorie Diet in Typhoid Fever, editorial, THE JOURNAL A. M. A., Oct. 12, 1912, p. 1378.

3. Kocher, R. A.: Ueber die Grösse des Eiweisszerfalls bei Fieber und bei Arbeitsleistung. Untersuchungen mittels des Stickstoffminimums, Deutsch. Arch. f. klin. Med., 1914, cxv, 82.

protein-sparing results achieved by their high carbohydrate diets were as a rule not attained until the fever had progressed into the second or third week of the disease. It is quite conceivable, as Kocher maintains, that the favorable effect does not manifest itself until after the first or severe stage of the infection; that is, until a period when the organism has acquired ability to resist the deleterious consequences of the noxious agencies. Accordingly Kocher has reinvestigated the protein metabolism in the earlier stages of febrile disease. He reports that even very liberal diets yielding as much as 80 calories per kilogram cannot retard the protein catabolism in the early period of the fevers as they do later. The conclusion is therefore forced on Kocher that, contrary to some of the more recent contentions of other clinical students of metabolism in fever, a considerable destruction of protein not chargeable to the high temperature *per se* or to insufficient energy intake, actually takes place. In the words of Kocher, infectious fever must be pictured as a clinical syndrome of rise in temperature and protein destruction, the latter perhaps due to special (toxic) effects on the protoplasm. It should be clearly noted that this conclusion in no way contra-indicates the essential changes in the dietary that have found their way into practice in this country, especially in the management of typhoid fever. More liberal feeding in suitable cases has come to stay. It merely brings the question of the quota of protein desired into the foreground once more.

THE ABSOLUTE AND PERCENTILE AMOUNTS OF SUGAR IN THE BLOOD

In the chemical pathology of sugar metabolism, there are numerous anomalies which have long been confusing because of their apparently conflicting character. The hyperglycemia of the typical diabetic individual may be regarded as an undisputed fact. There are, however, cases of glycosuria in which the percentage of sugar in the blood is certainly not increased above the normal. It is these which have furnished the basis for the claims of a form of renal diabetes in which the chief distinguishing characteristic appears to be an increased permeability of the kidney for blood-sugar.[1]

To help explain the presence in certain individuals of glycosuria without hyperglycemia, and, conversely, the absence of glycosuria when hyperglycemia is present, Epstein and Baehr[2] have offered a new hypothesis, based on a series of experiments in the Pathological Laboratory of the Mount Sinai Hospital in New York City. Their observations on the hyperglycemia following hemorrhage lend themselves to a new interpretation. It has long been known that after removal of blood the concentration of sugar in the circulating fluid subsequently increases. Some investigators incline to attribute the resulting hyperglycemia to psychic causes. It is doubtless true that an increased percentage of sugar results from the manipulation and operative interference — an increase probably associated with the adrenal disturbances to which we have referred editorially in the past.[3] Very marked hyperglycemias following blood-letting doubtless involve such factors. But it is quite possible to obtain smaller increases in the percentage of sugar even when the psychic disturbances are avoided. Epstein and Baehr have now pointed out that the increase in the percentage of sugar in the blood is indicative only of a relative, that is to say, percentile, but not an absolute, hyperglycemia. Although the percentage concentration rises after bleeding, the total amount of sugar present in the circulation, calculated on the assumed blood-volume, remains surprisingly constant. For example, in one animal, the total blood-volume before the bleeding was computed at 105 c.c. (5 per cent. of the body-weight). The amount of blood drawn was 30 c.c.; in other words, 75 c.c. of blood was left in circulation. The percentage of sugar in the blood as drawn was 0.105 per cent.; two hours after the bleeding the sugar-content rose to 0.154 per cent. By comparing the total volumes of blood in the animal before and after the bleeding, they are seen to bear the ratio to one another approximately as 3:2. On the other hand, the percentages of sugar in the blood before and after the bleeding are to one another as 2:3. In other words, the percentage of sugar in the blood is inversely proportional to the blood volume.

The increase in the percentage of sugar in such experiments with hemorrhage is usually seen to bear a striking relationship to the proportion of blood left in circulation after the bleeding. To test the hypothesis regarding the constancy of the absolute amount of blood-sugar, Epstein and Baehr also replaced the blood withdrawn by an equal quantity of physiologic saline solution. Under these conditions no change in the percentage concentration of the sugar occurs; for in most cases the sugar concentration of the diluted blood rapidly rises to what it was before the hemorrhage. In other words, the total sugar in the circulation remains unchanged.

Commenting on the cases of so-called renal glycosuria, the New York investigators remark that these may be dependent on an increase in the total blood-sugar and that the absence of any hyperglycemia could be accounted for by the existence in these individuals of an abnormally large blood-volume. They suggest the advisability of studying blood-volumes and computing therefrom the total blood-sugar in cases of diabetes mellitus. It seems somewhat far-fetched to

1. Renal Diabetes, editorial, The Journal A. M. A., Nov. 1, 1913, p. 1632.

2. Epstein, Albert A., and Baehr, G.: Certain New Principles Concerning the Mechanism of Hyperglycemia and Glycosuria, Jour. Biol. Chem., 1914, xviii, 21.

3. Newer Views of the Functions of the Adrenals, editorial, The Journal A. M. A., July 25, 1914, p. 322.

conclude, as Epstein and Baehr propose, that in such studies may lie the explanation for the disproportion which occurs so frequently in this condition between the degree of hyperglycemia and the intensity of the glycosuria. It is not easy to understand how any tissue-cells can distinguish or appreciate the total amount of circulating sugar, whereas it is quite in line with other chemical experience to find modifications in physiologic reaction induced by altered concentration of components of the blood. The fact of the apparent normal constancy of the absolute quantity of circulating sugar in individuals is of interest, whatever the validity of the appended theory may be.

Current Comment

SCIENTIFIC MEDICINE IS "PRACTICAL" MEDICINE

A letter received by THE JOURNAL reads: "What is the best treatment for diabetes mellitus?" That is all. There is nothing unique about the letter or the question; it is a sample of queries that come every few days, and illustrates the fact that some men are still treating names. There is a popular notion that a definite treatment has been laid down to correspond to every disease name and that having learned the name of the disease, one has but to apply the treatment prescribed in the text-book. The idea is crude and fallacious that when the diagnosis is made, the treatment is easy, the fallacy arising from the fact that diagnostic analysis is not carried far enough and names alone suffice without a determination of the pathologic condition in all its details. Our present querist appears satisfied with the name "diabetes," qualified, to be sure, by the adjective "mellitus." A little reflection should indicate that this name includes a number of different conditions, the presence or absence of which must decide the plan of treatment to be adopted. Thus diabetic patients differ much in their tolerance of carbohydrates. Some have acidosis and are threatened with coma, others are in no immediate danger. Before deciding on the treatment for any disease the actual conditions requiring relief must be determined, and then the appropriate remedy prescribed. In the case of diabetes it must be determined to what extent carbohydrates can be tolerated by the individual patient, as there may be present so great a degree of acidosis that to exclude carbohydrates would be dangerous. If the danger is from intoxication by sugar in the blood, the diet must be regulated to reduce the sugar to a minimum. If acidosis threatens, the proper remedies must be chosen to avert the danger. We are taking this particular letter and the disease it specifies to emphasize a principle; for the principle applies to other diseases —to all diseases, in fact. There is no specific treatment for typhoid fever; even the diet of a typhoid patient must vary according to conditions. The same is true of pneumonia: what will benefit one pneumonia patient may injure another. Those who conduct the so-called "practical journals," and more particularly the readers of these journals who love so-called "practical matter," should note that more is required of the physician than a diagnosis of the disease by name only. If it were otherwise doctors would not be necessary, for the majority of people can tell a case of whooping-cough, of measles, of typhoid fever, and of other common diseases. The people would need merely to look in a book and see the treatment. The doctor is supposed to treat, not a name, but the individual patient and the particular conditions in that patient. There is no "best treatment for diabetes," but what is best for each patient must be settled first by determining the actual pathologic conditions in the individual affected.

NEW FACTS ABOUT THE CEREBROSPINAL FLUID

There has taken place of late a commendable revival of interest in the normal and morbid physiology of the cerebrospinal fluid. A superabundance, rather than a diminution, of this fluid is the predominant factor in every morbid process of the central nervous system in which it is affected. In hydrocephalus, congenital and acquired, and in the various forms of meningitis, the excessive accumulation of fluid not only plays a part in the clinical expression, but also is often the determining factor in the high mortality-rate of these diseases. That there must be a disturbance of the balance between secretion and absorption to account for the abnormal increase is self-evident, but which of the two factors is the more potential has been a matter of conjecture. As a contribution to this problem, the work of Dandy and Blackfan[1] is significant. They were able to demonstrate by the production of an artificial hydrocephalus, not only that practically all the fluid was generated within the ventricles, but also that there was no absorption within the ventricles. Furthermore, by the injection of phenolsulphonephthalein, these observers were able to establish a normal standard for the excretion of phenolsulphonephthalein after its injection into the ventricles or subarachnoid space, and have further used the phenolsulphonephthalein test to distinguish clinically between two forms of hydrocephalus, one with, and the other without, obstruction to the ventricles. In a similar series of experiments Frazier was able to demonstrate by the phenolsulphonephthalein test that the venous channels play the most important part in absorption, and that the lymphatic absorption is a negligible factor. When the phenolsulphonephthalein was injected into the ventricle, the dye-impregnated cerebrospinal fluid appeared in the torcular herophili in two minutes, whereas it took almost twelve hours for it to reach the lymph-nodes of the parotid group when injected into the subarachnoid space. Of the earlier contributions, the most important by far were those of Faivre, Luschka, Francini, Levaditi and Mott, who by histologic evidence have shown that the cerebrospinal fluid is a secretory product of the choroid plexus, or as Mott describes it, the "chorioid gland"

1. Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, THE JOURNAL A. M. A., Dec. 21, 1913, p. 2216.

with an external secretion and an internal destination. Dixon and Halliburton[2] and Frazier[3] have been conducting independently a series of experiments in their laboratories on the hypothesis that inasmuch as the choroid plexus is a gland with a secretion, its function might be increased or decreased by certain influences. Dixon and Halliburton found that the injection of brain extract and more particularly the extract of choroid gland caused a hypersecretion, attributed to the specific action of some substance—possibly a hormone product of brain metabolism—on the secretory cells of the choroid gland. Of greater significance is the finding by Frazier of a substance which has a distinctly inhibitory effect. In marked contradistinction to all other glandular extracts, the extract of the thyroid gland was unique in that it caused a continued and prolonged decrease in the flow of cerebrospinal fluid, wholly irrespective of the effect on blood-pressure. It is often a far cry between laboratory demonstration and clinical application, but these experiments offer a hope of dealing with the problem of perverted secretion at its source. This, it seems, is the significant feature of these researches.

ONCE MORE THE LEAGUE FOR MEDICAL FREEDOM

The National League for Medical Freedom has again exercised its divine right of protesting against anything and everything beneficial to the public health. As those familiar with the history of the League know, protesting is one of the best things it does. Readers of THE JOURNAL may recall the first appearance in the public eye of this organization which suddenly burst, meteor-like, on the public, through the medium of half and full page display advertisements in the leading newspapers of the country, setting forth the awful dangers and deep laid plots of "The Medical Trust." Incidentally, as nearly as can be estimated, this campaign, costing about $50,000, was inaugurated before the newly organized "League" had any membership that any one had ever heard of. Just where the money came from to finance such an extensive campaign has never been explained. For several months during the summer and fall of 1910, the "League" protested to its heart's content, after which (whether due to exhaustion of its funds or of its lungs, it is impossible to say) it lapsed into the condition immortalized by Grover Cleveland as "innocuous desuetude." It has not been heard of since except that in a few localities where particularly ardent disciples dwelt and kept the fire burning on the altar, it has intermittently lifted up its voice in protest against everything in the way of sanitary progress and disease prevention, claiming in all cases that the efforts of physicians to diminish disease are a diabolical and deep laid scheme on the part of the "medical trust" to secure complete control of the nation. Just why the "medical trust" should want control or what it would do after it got it, the League has never divulged any more than it has its proof of the existence of such a "medical trust." These things are locked deep in the bosoms of the devoted partisans who make up this organization. The latest protest on the part of the League is directed against the United States Bureau of Education. In the report of the Commissioner of Education for 1913, in a series of twenty-five or thirty papers by experts on the progress of education in different fields, appears an able summary of the progress in medical education, by the secretary of the Council on Medical Education of the American Medical Association. This Council, it is hardly necessary to state, has for eight years past carried on an extensive study of medical education in this country. It appears that about the time this report was being prepared, an Iowa member of the National League for Medical Freedom wrote a paper objecting to the medical inspective of schoolchildren, which was sent to the Commissioners of Education with the demand that it be printed as a part of the Bureau of Education publications. The United States Commissioner of Education, it seems, declined to publish the article, wherein the National League for Medical Freedom sees evidence of a dark and awful conspiracy between the American Medical Association and the United States Government, and proceeds to protest. Of course, there may be such a plot, although the evidence on this point seems to be conspicuously lacking; but one explanation for the action of the Bureau of Education has apparently not occurred to the National League for Medical Freedom. It is barely possible that the reason why the report on medical education was gladly accepted and the tirade on medical inspection of schools was declined was that the report was the result of eight years of careful study, while the "protest" was the usual jumble of vague charges, exaggerated statements and unsupported assertions. In a word, it is barely possible that the Bureau of Education acted as it did because one paper was worth publishing and the other was not. This explanation has evidently not occurred to the National League for Medical Freedom, and simple as is this explanation, it is hardly to be expected that it would.

THE WINE OF CARDUI LIBEL SUIT

In last week's issue, attention was called to the fact that the manufacturers of "Wine of Cardui" have filed suit against the American Medical Association and the editor of THE JOURNAL. The Chattanooga newspapers, in noting the fact, state that the Chattanooga Medicine Company has engaged a firm of attorneys in Chattanooga, another attorney in Knoxville, still another in St. Louis and a fourth in Chicago, giving the names in each case. Such wholesale retaining of lawyers as that described probably comes high, but doubtless the Chattanooga Medicine Company can afford it. Defrauding the sick has in the past been an easy road to wealth, although we venture to prophesy that it is likely to be less easy in the future. The Wine of Cardui concern hires the lawyers, but the ailing women of the country pay the bill.

2. Dixon and Halliburton: Jour. Physiol., 1914, xlviii, Nos. 2 and 3.
3. Frazier, Charles H.: The Cerebrospinal Fluid as a Problem in Intracranial Surgery, THE JOURNAL A. M. A., July 25, 1914, p. 287.

Medical News

ILLINOIS

Teachers Must Be Examined.—The Board of Education of Springfield stated that all teachers in public schools must undergo physical examination and obtain certificates of health before being allowed to take positions.

Chicago

Faculty Changes.—Dr. Daniel A. K. Steele has been appointed senior dean and head of the department of surgery in the College of Medicine of the University of Illinois; Dr. Charles Spencer Williamson, professor of medicine and head of the department; Dr. Charles Sumner Bacon, professor of obstetrics and head of the department of obstetrics and gynecology; Dr. Julius Hays Hess, associate professor of pediatrics and head of the division of pediatrics; Dr. Norval Pierce, professor of otology; Dr. Joseph C. Beck, associate professor of laryngology and rhinology and head of the division; Dr. Oscar Eugene Nadeau, instructor in surgical pathology; Dr. A. O. Shoklee, associate professor of pharmacology; Dr. Roy L. Moodie, instructor in anatomy and Dr. C. S. Smith, instructor in physiological chemistry.

INDIANA

State Society Meeting.—The annual meeting of the Indiana State Medical Association will be held in Lafayette, September 23 to 25.

Suit to Get Physician's Estate.—The suit for $80,000 against the estate of the late Dr. Michael A. Jordan, Logansport, brought by John Jorden, Nolen, claiming to be the natural son of Dr. Jordan, is said to have been compromised for $8,000.

Personal.—Dr. Brown S. McClintic, Peru, has received an appointment as surgeon under the American National Red Cross and will sail for Europe this week.——Dr. Andrew W. Smith, Hammond, has been appointed director of athletics in Throop College, Pasadena, Cal.——Dr. Charles Melvin Mix, Muncie, has returned from abroad.——Dr. James H. Walker, Henryville, has been appointed social superintendent of the Indiana State Reformatory, Jeffersonville, vice Prof Rufus B. von Klein Smid, elected president of the University of Arizona.——Dr. W. N. Williamson, Indianapolis, has been appointed supreme medical examiner of the Order of Larks.

IOWA

Society Offers Service.—The Fort Madison Medical Society, at its meeting August 31, offered the services of its members free to the school board for the examination of schoolchildren.

Demand for Small-Pox Pamphlet.—The State Board of Health of Iowa recently issued an edition of 42,000 copies of a bulletin regarding small-pox, and during the first week after the issue 37,000 copies were asked for.

Tuition Fees Not Raised.—An official statement from the State University of Iowa says that the tuition fees to both the College of Medicine and the Homeopathic College of Medicine for the four years, respectively, are $60, $50, $50 and $60. Reports previously sent in erroneously gave the figures as nearly twice those amounts which were published in the Educational Number of THE JOURNAL.

Personal.—Dr. Charles E. Glynn has been appointed president of the Davenport Hospital.——Dr. Vernon L. Treynor has been elected medical inspector of the Council Bluffs schools.——Dr. Percival B. Glew, Des Moines, has been appointed instructor in physical hygiene in the public schools of that city.——Drs. Mary K. Heard, Iowa City, and Louis G. Patty, Carroll, have returned from abroad.

KENTUCKY

Antityphoid Inoculation.—At the request of Senator James, Surgeon-General Rupert Blue, U. S. P. H. S., is forwarding a sufficient supply of antityphoid serum to Pineville for the inoculation of 400 persons. Typhoid fever is prevalent in camps around Pineville.

Personal.—Dr. Joseph N. McCormack, Bowling Green, who has been ill for several months, recently underwent an operation at Rochester. His many friends will be glad to know that he is doing well, and that the outlook is promising that he will soon be restored to health.

Campaign against Trachoma.—The recent government survey showed about 250 cases of trachoma in Jefferson County outside of Louisville, 75 per cent. being curable. Wide-spread infection is present also in Breathitt, Clay, Jackson, Lee, Leslie, Onsley, Perry and Clark counties, almost every county in Kentucky being more or less affected. The State Board of Health has accordingly prepared a proclamation excluding from the schools all children with trachoma until they have been treated and pronounced cured. In Louisville free treatment is to be given at the Emergency Hospital and free transportation will be afforded the patients to the hospital. Dr. Mullins of the U. S. Public Health Service will come to Louisville to take personal charge of the work. Each patient will be expected to remain in the hospital for a week or ten days, and the course of the case will be supervised by the physicians or a nurse for several weeks after the patient returns home. Teachers are to be instructed in the symptoms of trachoma and given authority to send home any child with suspicious sore eyes. The children will not be allowed to return until pronounced free from infection after medical examination.

LOUISIANA

Home from Abroad.—Dr. and Mrs. H. F. Ader and Drs. Robert C. Kemp and John A. Caruthers, Baton Rouge, have returned from Europe.

Dispensary Open.—It has been decided by the board of directors of the Sickles Fund for the Dispensing of Medicine to the Poor to open an additional dispensary at the Touro Infirmary, New Orleans.

Personal.—Dr. Frederick W. Parham has resigned from the Board of Administration of Tulane University of Louisiana, in order to accept the chair of surgery in the New Orleans Polyclinic for the coming session.——Dr. Edmund D. Martin has been appointed to the chair of gynecology in the New Orleans Polyclinic.

Maternity for Touro.—The Touro Infirmary, New Orleans, will build a maternity hospital through the beneficence of Mrs. Henry Newman, who has donated $25,000 for the purpose. The building is to be known as the Henry Newman Maternity Hospital, as a memorial to the donor's late husband.

Medicine Practice Act.—At the recent assembly of the Louisiana State Legislature a very complete medical practice act was passed. One of the features embodied in the act is a physician for examination in the following branches: "Anatomy, physiology, chemistry, obstetrics, gynecology, physical diagnosis, surgery, pathology, materia medica, theory and practice of medicine and hygiene, providing that any person not using internal medication in his or her practice shall be exempt in examination in materia medica." In a concluding section there is a provision: "That nothing in this act shall be construed as applying to the practice of osteopathy or dentistry, or as effecting or changing existing laws on these subjects."

MARYLAND

Personal.—Drs. Charles W. Hartwig and Ridgely B. Warfield, Baltimore, have returned from abroad.——Dr. Louis A. Sexton, newly appointed admitting physician and third assistant superintendent of the Johns Hopkins Hospital, Baltimore, assumed his new duties September 11.

New Hospital Opened.—The Du Pont Maternity Hospital, erected at Cambridge, through the generosity of Mrs. Alfred I. Du Pont of Wilmington, Del., has been opened to the public, although the formal opening will not occur until later. The building has cost about $35,000, the gift being made through Dr. Brice W. Goldsborough. It is a three-story brick building with concrete floors. It is erected near the Cambridge-Maryland Hospital, with which it is connected by an inclosed corridor. There are two wards with eight beds in each and nine private rooms.

Banner Centennial.—The following Baltimore physicians composed the Medical Relief Committee during the Star Spangled Banner Centennial, September 6 to 13, and rendered assistance to those who were injured or ill: Dr. George L. Wilkins, chairman, and Drs. John W. Chambers, Thomas R. Chambers, Thomas S. Cullen, Cecil W. Vest, William S. Baer, Alexius McGlannan, John D. Blake, Herbert C. Blake, George A. Hartman, Frank J. Kirby, Robert Parker Bay, Thomas J. O'Donnell, Joseph E. Gichner, John R. Abercrombie, Albert T. Chambers, G. C. Threine, Walter D. Wise, Archibald C. Harrison, D. Webster Cathell, John Staige

Davis, William T. Watson, George Heller, Archibald M. Shipley and Monroe A. Maas.

MASSACHUSETTS

Personal.—Dr. Vincent Y. Bowditch, Boston, is reported to be at Liverpool awaiting passage to the United States.——Dr. Edward P. Worth, Edgartown, has been appointed medical examiner for Dukes County.

Home from Europe.—Drs. Francis D. Donoghue, Boston; Rufus A. Kingman, Brookline; George B. Buehler, Cambridge; Dr. and Mrs. Edward F. Himmins, Boston, and Frank B. Granger, Boston, have returned from Europe.

Hospital Open.—The new St. Elizabeth's Hospital, Brighton, opened September 1. The building is fireproof, three stories in height, has been erected at a cost of a quarter of a million dollars and has accommodations for more than two hundred patients. Dr. John R. Slattery is superintendent of the institution.

MICHIGAN

Personal.—Dr. Emil Amberg, Detroit, and Collins H. Johnston, Grand Rapids, have returned from abroad.——Dr. Fritjof E. Berge, Grand Rapids, announces his intention of remaining in England for considerable time.

Board of Health Train.—The trip of the Michigan health train just finished is said to be the most successful expedition thus far undertaken. During the month, the train was exhibited to more than 40,000 people.

State Medical Society Meeting.—The forty-ninth annual meeting of the Michigan State Medical Society was held in Lansing, September 10 and 11, under the presidency of Dr. Guy L. Kiefer, Detroit. Grand Rapids was selected as the meeting place for 1915 and the following officers were elected: president, Dr. Reuben Peterson, Ann Arbor; vice-presidents, Drs. Louis W. Toles, Lansing; Alfred W. Hornbogen, Marquette; Colin D. Munro, Jackson, and Vernon A. Chapman, Muskegon; councilor for third district, Dr. Starr King Church, Marshall; delegates to the American Medical Association, Dr. Louis J. Hirschman, Detroit; and Herbert E. Randall, Flint; and alternates, Drs. Jacob D. Brook, Grandville, and Alford E. W. Yale, Pigeon.

MINNESOTA

Home from Abroad.—Dr. Muhlenberg Kellar Knauff, Two Harbors; Dr. and Mrs. Arthur T. Mann, Minneapolis, and Dr. Olaf J. Hagen, Moorhead, have returned from abroad.

Personal.—Dr. John E. Crewe is acting at present as health officer of Rochester.——A banquet was tendered Dr. William E. Harwood, Eveleth, by his professional associates of the Range Medical Association, at Hibbing, September 4. Dr. Harwood is about to move to Peoria.

Cancer Committee Named.—Drs. Warren A. Dennis, St. Paul; William J. Mayo, Rochester, and James E. Moore, Minneapolis, the committee on cancer of the Minnesota Public Health Association have been invited to act as the Minnesota State Committee on Cancer for the American Society for the Prevention and Control of Cancer.

Selection of Sanatorium Site.—At a meeting of the commissioners of the Southwestern Minnesota Antituberculosis Sanatorium Association which includes the counties of Lincoln, Lyon, Pipestone, Murray, Cottonwood, Rock, Nobles and Jackson, held in Windom recently, it was decided to name a first, second and third choice of sites, leaving the final selection to the State Board of Control. The first choice is that offered by Windom on Fish Lake, about 4 miles east of Windom, 54 acres in extent, at $110 an acre; the Currie site of 123 acres is located 100 miles north of Currie on the shores of Lake Shetek and is offered at $150 an acre, and the site offered by Worthington is 1½ miles south of that place on the shores of Lake Okebena and consists of 60 acres offered at $150 an acre. It is proposed to construct buildings costing about $100,000.——The Wabasha County Tuberculosis Commission has selected Wabasha as the site for the State Sanatorium.

NEW YORK

District Society Meeting.—The Eighth District Branch Medical Society will hold its annual meeting at Niagara Falls, September 23 and 24, under the presidency of Dr. Arthur A. Bennett.

Medical Club Organized.—The Miamonides Club, a private medical club recently organized in Buffalo, held its first meeting at the Hotel Statler, recently, under the presidency of Dr. Marcell Hartwig.

Mallein Test Required on Imported Horses.—Beginning September 1, this state will not permit any horses to enter its borders unaccompanied by a certificate of freedom from glanders, established by the mallein test.

Personal.—Drs. Lucien Howe and Ray Johnson, Buffalo, have returned from abroad.——Drs. Lester Levyn and Milton H. Goldberg, Buffalo, are reported to be still in the war zone in Europe.——Dr. Abraham S. Tepper, house surgeon at St. Joseph's Hospital, Far Rockaway, Long Island, was operated on for appendicitis in the hospital, September 1, and is reported to be doing well.——Dr. Harold K. Faber, Westfield, has accepted a position on the staff of the Rockefeller Institute for Medical Research in New York City.

Epidemic Sore Throat in Rockville Centre.—In Rockville Centre, a town of 4,250 inhabitants, during the first half of June over 200 cases of septic sore throat developed. About 90 per cent. of the sick were found to have used milk from a single dairy. Altogether about 400 quarts were delivered daily from the dairy to about 173 customers. A milk supply making up one-fourth of the total was shown to be in use in at least nine-tenths of the cases. Over 200 cases occurred among 173 customers and about one case is recorded for every 2 quarts of milk delivered.

New York City

Personal.—Dr. Walter Booth Adams, Beirut, Syria, is spending a furlough of eight months in the United States.——Dr. William H. Luckett and Dr. and Mrs. George A. Tuttle, and Dr. Jacob L. Maybaum have returned from Europe.

Typhoid Fever in Brooklyn.—Typhoid fever has developed in the Park Slope section of Brooklyn since September 1, and up to September 10, twenty-nine cases have been reported. Vigorous search is being made to find the source of the infection.

Health Department Official Dies.—Mr. Alfred T. Metcalf, for twenty-eight years connected with the Health Department of Brooklyn and recently chief clerk, died in his summer cottage at Sheepshead Bay, September 2, from cerebral hemorrhage, aged 61.

For a Health Home.—The bulk of the estate of Jacob Langeloth, estimated at more than $10,000,000, has been bequeathed as a foundation for a home, to be known as the Valeria Recreative and Convalescent Home. The institution is designed as a home for people of refinement and education who cannot afford to pay the charges exacted at health resorts. It is to be non-sectarian.

The Death-Rate of Children Under 5 Years of Age.—A recent *Bulletin* of the Health Department states that the question is often asked "Why do all organizations direct their efforts to saving babies under 1 year of age only to allow them to die during the second or third year?" The department has therefore made an investigation of the death-rates of children at the various age periods under 5 years. A comparison of the five-year period from 1904 to 1908, previous to the establishment of the Bureau of Child Hygiene, with the five-year period from 1909 to 1913, shows that there has been a decrease in the death-rate of 23 per cent. in children under 1 year of age, of 25 per cent. between 1 and 2 years, 27 per cent. between 2 and 5 years, and a total of 26 per cent. under 5 years of age.

OHIO

In the War Zone.—Dr. and Mrs. James G. Grant, Akron, are on their way home from Europe by way of Denmark.——Dr. Martin Stamm, Fremont, is reported to be serving with the hospital corps of the Swiss army in Berne.——Dr. Miloslav Francisci, Cleveland, has returned from Europe.

Toledo Will Grade Restaurants.—In future every restaurant in Toledo will be graded by the City Board of Health. Cleanliness, absence of odors, personal hygiene of employees and equipment of kitchen will be taken into consideration. Each restaurant will be given a card with its grade, "A," "B," "C," marked thereon. Those below "C" will be barred

District Tuberculosis Hospital.—Ashtabula, Geauga, Lake and Trumbull counties have been placed in Tuberculosis Hospital District No. 4, by the Division of Tuberculosis of the State Board of Health. Under the amended district hospital law, passed last winter, the cost of the erection and maine-

nance of the hospital is assessed against each county in direct proportion to its tax duplicate.

To Urge Health Laws.—Dr. Benjamin R. McClellan of Xenia will be chairman, and George V. Sheridan of Columbus, secretary, of a committee of the Ohio State Medical Association, Ohio State Board of Health, Ohio State Dental Association, Ohio Commission for the Blind and Ohio State Pharmaceutical Association, to urge various changes in, and additions to, the health laws at the next session of the legislature.

Conference on Public Health.—The Ohio State Medical Association, the Ohio Society for the Prevention of Tuberculosis and the State Board of Health were represented at a conference on public health held in Columbus September 3. The conference discussed suggested legislation dealing with the division of the state into health districts, strengthening the act under which the commission for the blind operates, and amendments to the tuberculosis law providing for easier entrance to the Mount Vernon Tuberculosis Sanatorium.

Cincinnati

Abroad and Returned from Abroad.—Drs. William C. Herman, J. Henry Schroeder and son, Julien E. Benjamin and John M. Withrow have returned from abroad.——Dr. and Mrs. Adolf F. Morgenstern are reported to be in Koenigsberg.——Dr. and Mrs. William Gillespie are waiting in Edinburgh for an opportunitiy to return to this country.

Personal.—Dr. E. Gustave Zinke has been appointed a member of the Municipal Board of Health in place of Dr. Edward W. Walker, term expired.——Dr. Charles F. Sanborn has resigned as superintendent of the Cincinnati City Hospital, to take effect November 1.——It is stated in the daily *Press* that Dr. Arthur C. Bachmeyer is to succeed Dr. Sanborn as superintendent and that Dr. Walter E. List, at present assistant superintendent at the hospital, will be appointed superintendent of the Branch Hospital in place of Dr. Bachmeyer.——Dr. U. G. Senour, Pleasant Ridge, has been appointed district physician for Kennedy Heights.

PENNSYLVANIA

New Medical Club House.—Plans have been completed for the new club house at Wilkes-Barre, for the Luzerne County Medical Society. It is to be of stone and brick, 48 by 65 feet, fireproof and will cost $20,000.

New Buildings for State Hospital.—At a meeting of the trustees of Rittersville State Hospital, plans were adopted for the erection of a reception building, two buildings for tuberculosis patients and a nurses' home and an isolation cottage.

Personal.—Dr. Henry J. Benz has succeeded Dr. Henry B. Burns as superintendent of the Bureau of Child Welfare of the Department of Health of Pittsburgh.——Dr. Adolph Koenig, Pittsburgh, has been reappointed a member of the State Bureau of Medical Registration and Licensure.——Dr. W. D. De Long, Reading, and J. Clayton Weidman, Mercer, have been reappointed members of the State Dental Board.——Dr. Henry B. Burns, retired superintendent of the Child Welfare Bureau of the Pittsburgh Department of Health, was given a dinner by the employees of the Bureau, August 31, and was presented with a traveling bag. Dr. Burns began his work as head of the Medical Department of the Board of Education of Pittsburgh.

Philadelphia

Hospital News.—Charity Hospital announces, in addition to the Roentgen-ray room, the remodeling of operating-room and alterations in different parts of the building. Alterations and additions are to be made to the Rush Hospital for Consumptives.——Ground has been broken for a four-story addition, 44 by 36 feet, to the Kensington Hospital, at a cost of $19,000.——In order that colored orphans and deficients may receive vocational training under the most favorable conditions and that colored convalescents may be guaranteed a restoration of health, the authorities of the Mercy Hospital are planning to remove their social service department to the country. So soon as a desirable farm site can be found in Philadelphia County, buildings will be erected for one of the most complete, scientifically equipped institutions conducted by colored people in the United States.

WISCONSIN

European Travelers.—Dr. Urban J. Durner, Milwaukee; Dr. Charles W. Giesen, Superior, and Dr. William Webber Kelly, Green Bay, have returned from abroad.

Personal.—Dr. William F. Lorenz of the staff of the Mendota State Hospital for the Insane has returned after a six months' trip of research in the South, devoted to the study of the causes and effects of pellagra.——Dr. R. Jay Elliott, National Home, has been elected surgeon-general of the United Spanish War Veterans.

State Hygienic Laboratory Enlarged.—The entire top floor of south hall in the University of Wisconsin, Madison, has been given up to the state laboratory of hygiene which is maintained out of university funds and is under the supervision of a special committee composed of Dr. Cornelius A. Harper and William F. Whyte, representing the State Board of Health, and president, C. R. VanHise and Prof. Charles R. Bardeen, dean of the medical school representing the university. The laboratory is under the immediate charge of Dr. W. D. Stovall, chief bacteriologist, and E. J. Tully, chief chemist.

GENERAL

District Society Announcement.—The Iowa and Illinois District Medical Association announces through its program committee that at the regular fall meeting to be held the first week in October in Davenport, Dr. William J. Mayo and his guests will address the society, and that at the meeting to be held October 23 in Rock Island, Ill., Dr. Albert J. Ochsner, Chicago, will be the guest of the society.

Railway Surgeons Convene.—At the annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association held in St. Paul last week, the following officers were elected: president, Dr. Alexander J. McCannel, Minot, N. Dak.; vice-president, Dr. John B. Darling, St. Paul; secretary-treasurer (ex officio), Dr. John H. Rishmiller, Minneapolis. Minneapolis was selected as the next place of meeting.

Conference on Tuberculosis.—The second Mississippi Valley Conference on Tuberculosis, in cooperation with the National Association for the Study and Prevention of Tuberculosis, will be held in St. Louis, October 6 to 8. This is the first of four sectional conferences being held on tuberculosis, the others being at Bangor, Maine, Philadelphia and Atlanta. For information write to Mr. W. A. Jones, Jr., Mississippi Valley Conference on Tuberculosis, St. Louis, Mo.

Cumberland Valley Physicians Meet.—At the annual meeting of the Cumberland Valley Medical Association held at Boiling Springs Park, September 3, the following officers were elected: president, Dr. Charles M. McLaughlin, Greencastle, Pa.; Drs. S. Seibert Davis, Boonesboro, Md.; Samuel E. Mowery, Mechanicsburg, Pa., and John W. Croft, Waynesboro, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected); treasurer, Dr. Paul P. Allen, Chambersburg, Pa.

Colored Practitioners' Meeting.—The Tristate Association of colored physicians, dentists and pharmacists of Ohio, Kentucky and Indiana met in Indianapolis, September 7 to 9, and perfected an organization and elected the following officers: president, Dr. William A. Method, Columbus, Ohio; vice-president, Dr. William J. Woodlin, Columbus, Ohio; secretary, Dr. Henry W. Armistead, Indianapolis, Ind.; treasurer, Dr. Abram L. Cabell, Terre Haute, Ind. The next meeting of the association will be held in Columbus, Ohio, in July next.

A Warning.—A subscriber writes that a certain Donald McCormick is soliciting subscriptions to a bureau called the "American Bureau (or Institute) of Medical Research," at Indianapolis, Ind. The purpose of this bureau, he states, is to receive all medical journals of the world and to make reprints of each individual article which are kept in stock and lent to subscribers to the bureau. The cost of membership is $5 a year. A physician in Iowa who addressed the bureau had his inquiry returned with the announcement that no such institution existed, and that the addressee was not at the place named.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mt. Sinai Hospital, German Hospital and Manhattan Eye and Ear Hospital, each $5,000; the Isabella Heimath and St. John's Home, New York City, each $1,000 by the will of Jacob Langeloth.

Mt. Sinai Hospital, Montefiore Home, Lebanon Hospital and Beth Israel Hospital, New York City, each $5,000 by the will of Renno Neuberger.

Montefiore Home, New York City, $2,500 for endowment of a bed in memory of his parents, by the will of Albert Rich.

German Hospital, New York City, $1,000 by the will of Adam Schulz.

St. Vincent's Hospital, New York City, $2,307, the proceeds of a lawn fete.

Mt. Sinai Hospital, $5,000, and the New York Institute for the Instruction of Deaf and Dumb, New York City, one-half of the residue of the estate up to $5,000, by the will of Moses Weinstein.

Children's Hospital, Boston Floating Hospital and Hospital Cottages at Baldwinville, Mass., each $500 by the will of Francis F. Sears.

Mercy Hospital, Chicago, $250,000 by the will of Charles Heines, St. Charles, Ill.

FOREIGN NEWS

Postponement of Pan-American Student Congress.—Business and finance are so demoralized in South America by the war in Europe that the Chilean minister at Washington has been officially notified that the international Pan-American congress of university students will not be held as announced at Santiago, in September, and is indefinitely postponed. A press dispatch states that three delegates from the United States are already on their way to Chili. The scope of the meeting was mentioned in these columns recently, page 696.

The Propaganda in Germany.—The recent annual representative assembly of the organized medical profession in Germany—the so-called Aerztetag—adopted a resolution to increase the dues a trifle in order to raise a fund of about $6,200 annually to be expended in fighting quackery and nostrums. Part of the sum, also, is to be given to further the efforts of the German Council on Pharmacy and Chemistry. An editorial in the *Therap. Monatshefte* comments on this action of the Aerztetag as of far-reaching import, saying that such a decided practical measure taken by the profession itself to combat medical frauds cannot fail to exert an influence on the authorities above and on the rank and file of the profession below, and produce more of an effect than any amount of appeals to legislative factors.

Deaths in the Profession Abroad.—Dr. Gutierrez, count of San Diego, senator, director of the Institute Rubio and a leading practitioner at Madrid, aged 63.——Dr. G. Vianna, assistant at the Oswaldo Cruz Institute for Infectious Diseases at Rio de Janiero and author of the successful method of treating infection with species of *Leishmania* by intravenous injection of tartar emetic, has succumbed to infection professionally acquired, aged 30.——Surgeon-General Sir Anthony Dickson Home, V.C., K.C.B., probably the most distinguished officer on the retired list of the Royal Army Medical Corps; died in London, August 9, aged 87. He entered the medical corps in 1848 and served in the Crimean War and during the Indian Mutiny where he won the Victoria Cross by his heroic defense of the wounded left behind at Lucknow by the relieving column of Havelock. After this he served through the China, Maori and Ashantee campaigns and in 1880 was made surgeon-general and appointed Principal Medical Officer of Her Majesty's Forces in India. He was retired in 1886.——A. E. Cordes, a leading obstetrician and gynecologist connected with the university of Geneva, Switzerland, aged 69. He was a frequent writer of articles on his specialty, not only in French, but in British medical journals, and was one of the delegates to the international medical congress held in Washington in 1887 and secretary of the international congress on gynecology and obstetrics which met at Geneva in 1896.——Alfred Hegar, professor of obstetrics and gynecology at Freiburg i. B. until 1904, aged 84. Almost the last article from Hegar's pen was reviewed in THE JOURNAL, Nov. 8, 1913, warning that the catheter should never be used in examining the uterus, even when a pregnancy seems wildly improbable; he was discussing the lessons to be learned from the Niebergall case. He founded the *Beiträge zur Geburtshilfe und Gynackologie*, now in its nineteenth volume.

CANADA

Personal.—Prof. Irving Heward Cameron has returned to Toronto.——Dr. William Grant Stewart, Montreal, and Dr. Maxwell Luterman, Montreal, have returned from Europe.——Dr. H. C. Wetmore, St. John, N. B., has been appointed deputy receiver-general at the port of St. John, N. B.

Toronto's Health.—Dr. Charles J. Hastings, municipal officer of health, has reported to the local board of health that during the past five years the death-rate in Toronto per 1,000 of population has decreased approximately 25 per cent. In August the total deaths were fourteen less than in August of last year. During the first eight months of the present year there were 421 fewer deaths than in the corresponding period of the past year. Owing to the establishment of the Child Welfare Department, there has been a marked decrease in infant mortality.

WAR NOTES

Medicine Embargo Raised.—The Russian government has authorized the Red Cross Society to import drugs and surgical instruments free of duty during the war.

Roentgen Returns Decoration.—Berlin papers state that Professor Roentgen has given back the gold medal presented him by the Royal Society in honor of his discovery, the reason assigned being the attitude of England in this war.

Red Cross Funds to Servia.—The president of the Serb-American Red Cross Committee has sent by cable $20,000 to the Red Cross Committee in Servia, and also $10,000 collected by the Serb-American Alliance of California. This money is being transmitted by way of Greece.

Hospital Unit Offered to Canada.—Dr. Kendall, secretary of the Edinburgh University Club of New York, has offered a hospital unit to the Canadian government composed of graduates of the university in the United States, the unit to be fitted out and equipped by its own members.

American Women's Hospital in London.—The American Women's Hospital in London, with accommodation for 200 patients and fully equipped through the efforts of American women in London, has been turned over to the War Office and is housing a large number of wounded soldiers.

Red Cross Surgeons Expect Call.—Surgeons available for Red Cross work and who have indicated their willingness for duty have been advised by the relief board to hold themselves in readiness for a call to duty at any time. A similar notice has been sent to the 5,000 Red Cross nurses registered in the United States.

Emigrant Station Turned Over to Red Cross.—The North German Lloyd Emigrant Railway Station at Bremen, which was completed in April last, has been turned over to the Red Cross for hospital purposes, and the package room of the station has been set apart as a depository for articles of food and clothing to be distributed by the Red Cross to the soldiers.

Daughters of Empire Equip Hospital.—Dr. Donald Armour and Sir William Osler are to have charge of the Queen's Canadian Military Hospital to be established in London, England, with the money raised by the Imperial Daughters of the Empire in Canada. Dr. Philippe Pelletier, agent-general for the province of Quebec in England, has been appointed a member of the medical staff of this hospital.

To Safeguard Soldiers' Health.—The specific request from the minister of militia for the services of Toronto's bacteriologist, Dr. George G. Nasmith, has been assented to by the Toronto Board of Health. Dr. Nasmith will, therefore, go to Europe with the first Canadian contingent to see that the soldiers have a good water-supply and to advise on all matters of sanitation.

No Dum-Dum Bulleta.—French medical officers who were captured by the Germans at Namur and are on their way back to France by way of England, are said to have reported that they saw no evidence of soldiers having been wounded by dum-dum bullets on either side. The medical service of the Germans and allies was said to be excellent, but it was noted that the German wounded were often discharged too early from the hospitals.

The American Hospital.—The American Hospital which is housed in the Lycee Pasteur at Neuilly received its first lot of wounded, September 5. On the first sound of firing, the ambulances of this hospital dashed to the front, picked up the wounded and returned them rapidly to Neuilly. About fifty patients were accommodated at this time. An appeal has been made by prominent women of New York for $250,000 for the hospital so that it may be able to provide 1,000 beds for wounded soldiers.

Our Austrian Exchanges.—The Vienna exchanges of THE JOURNAL arrive irregularly and with comparatively few pages, but the Association of Medical Publishers announce that they will make every effort to keep issuing their publications regularly, although in these troublous times it will not be possible to issue the medical periodicals in their complete form. They add that the lack of articles to publish would prevent this any way. Delays in distribution and transmission will be inevitable.

Red Cross Expedition Sails.—The American National Red Cross steamer, *Red Cross*, whose approaching departure was noted in last week's issue of THE JOURNAL, left her anchorage in Gravesend Bay, September 13. The delay in sailing was due to fear of international complications over

the make-up of the crew. In addition to the thirty surgeons and 125 trained nurses on the *Red Cross*, she carries a cargo of thousands of pounds of absorbent cotton, bandages, drugs and surgical instruments. Her first stop will be at Falmouth, England, where twenty-four nurses and six surgeons will be landed. She then proceeds to Rotterdam, where surgeons and nurses for Austria, Germany and Russia will disembark, and the balance will be taken to some French port, probably Cherbourg.

The Potassium Supply.—On another page mention is made of shortage of potassium compounds due to the interruption of commercial intercourse with Germany. Although the German monopoly of the market for potassium compounds is practically complete, commercial possibilities of potash exist in other countries. There are said to be resources in Spain, which, however, are undeveloped and likely to remain so for some time. After numerous false rumors it appears that a source of potash supply in this country is really about to be developed. The Secretary of the Interior has recently announced that within the next three months American potash would be produced at Searles Lake, Cal. The maximum production of the plant is expected to be between 37,000 and 38,000 tons a year. The amount of German potash annually imported is estimated to exceed 230,000 tons, so that this source of domestic supply will not of itself meet the demands of the country. Economy will still be necessary with reference to potassium compounds.

PARIS LETTER

PARIS, Sept. 4, 1914.

The War

The seriousness of the political events which have occurred since my last letter have drawn universal attention to the war. As a matter of course, medical life has also felt the effects of the great European conflagration. The readers of THE JOURNAL will therefore pardon me if my present letter is devoted altogether to matters connected with the war.

Patriotic Devotion of the Medical Profession

A large number of physicians with no military connection have offered their services to the war department. Especially notable is the case of Dr. Darroze, who took part in the campaign of 1870 as a physician and who to-day aged 68, has gone to the front, resuming the position that he occupied forty-four years ago. The army is at present well supplied with physicians. A detachment of the French Red Cross, composed of sixteen physicians, has set out for Servia.

The services of the Assistance Publique, having been reduced by mobilization, have already been completely reorganized. On the other hand, some sections of the country being completely deprived of physicians by the mobilization, it is recommended that physicians who have no military obligations, and who are able to leave their customary residences, should inform the director of the sanitary service of the army corps in their vicinity, who will dispose of their services according to the needs that may arise.

Resources of the French Red Cross

The French Red Cross is composed of three societies, the Société de secours aux blessés, the Association des Dames françaises and the Union des Femmes de France. The first of these societies can put at the disposal of the war department 260 auxiliary hospitals with 17,000 beds; the second has 160 auxiliary hospitals with about 6,000 beds; the third has 180 auxiliary hospitals with 12,000 beds; altogether 600 auxiliary hospitals provided with about 35,000 beds and a staff ready to act. Moreover, each one of these societies receives fresh offers of assistance every day. The supplementary nurses, who are already offering their services in great number, will make it possible to open supplementary hospitals in many private buildings already placed at the disposal of the Red Cross as well as in college and other educational buildings. The Union des Femmes de France has organized sixty flying detachments each composed of a head nurse and six nurses under her, ready to leave for the front or for the military hospitals. The 10,000 nurses that the union has trained, many of whom have already had experience in Morocco, are prepared to start.

Advice to Surgeons with Regard to Wounds in War

August 10, Dr. Edmond Delorme, inspector general of the military health service, read a paper on this subject before the Académie des Sciences in which he emphasized the fact that at present military surgery ought to be conservative in almost all cases, especially of bullet wounds. The small caliber of the wounds made by the bullets now used, the fact that the practice now is to refrain from probing the wounds, and the antiseptic and aseptic methods in use, have transformed the prognosis of most military wounds, have lessened complications and losses and have improved the results. The surgeon, therefore, ought to strive to cure, leaving the fewest possible ill effects. The methods of military surgery at the front necessarily differ from ordinary surgery, but in the hospitals at the rear they approach those of ordinary surgery.

Dr. Delorme reviewed successively the treatment of wounds of the soft parts produced by the pointed German bullet—wounds which are generally very narrow, not soiled with fragments of clothing and which are cured in a few days or weeks; treatment of wounds produced by the round ball of shrapnel and the treatment of fractures. For the latter conservation ought to be the rule. It insures recovery in the vast majority of cases, no matter what the bone affected or what the extent of the degree of comminution of the fracture. In abdominal wounds with intestinal lesions, though there may be room for argument as to the advisability of immediate laparotomy in ordinary surgery, it is altogether inadvisable in military surgery. The most recent wars, those in the Transvaal, Manchuria and the Balkans, have shown the harmfulness of laparotomy. In the Transvaal, laparotomy, though practiced by eminent surgeons, under most favorable conditions, gave fewer recoveries than did non-operative treatment.

The German bullet makes a small orifice in entering the abdomen and carries with it no infecting substance from the clothing. In the intestinal loops it makes only the smallest perforations which tend to close spontaneously. For such injuries the old treatment seems sufficient, namely, absolute rest, the patient not being transported to any distance, and complete abstinence from food and drink, especially the latter, for several days. This régimen is rendered endurable by constantly rinsing out the mouth, employing rectal or subcutaneous injections of artificial serum with opium and keeping the patient in Fowler's position.

When, on the other hand, the speed of the projectile has been greater, when the bullet has ricochetted or when in case of the large shrapnel ball, the orifice of entry is larger, the intestinal wound or wounds are also larger and less apt to close spontaneously. Also the introduction of shreds of clothing is frequent. In such cases peritoneal infection is certain. The proper treatment is, in addition to measures already indicated, the use of the drop method of proctoclysis; the abdomen is opened rapidly and cleansed with ether after Morestin's method (THE JOURNAL, June 21, 1913, p. 1971) and drainage instituted.

Dr. Delorme emphasizes especially the fact that this operation is no longer the complicated procedure of classic laparotomy, which a staff of trained surgeons cannot perform more than three or four times a day while neglecting other wounded men, a fatiguing operation, increasing shock, liable to destroy reparative adhesions, demanding special surroundings and minute aseptic precautions in order that it may not give fewer recoveries than non-operative treatment. It is, on the other hand, a very simple, rapid procedure, within the ability of any practitioner. The Académie des Sciences has decided to suggest to the war department that Dr. Delorme's paper be printed for distribution to all the military physicians and surgeons of our army.

The Academy of Medicine and the War

The Académie de médecine has decided unanimously that all its members would place themselves at the disposal of the government for any purpose for which they may be useful to the country. It has asked to be given the necessary animals and apparatus for manufacturing small-pox vaccine. In view of the possible danger of small-pox epidemics, so common during war, the academy believes that not only children ought to be vaccinated, but all persons who have not been vaccinated within seven years. Instructions have been issued to the director of primary instruction and to the medical inspectors of schools to have all children attending the public and private schools revaccinated as soon as possible. Instructions have also been given to the general administration of the Assistance Publique (public charities) to have every applicant for help vaccinated or revaccinated.

In view of the possible danger of the spread of typhoid, the Académie de médecine has drawn the attention of the interior department to the opportunity for antityphoid vaccination, suggesting that such vaccinations be accomplished as soon as possible.

The Academy of Sciences and the War

In view of the serious situation of the country, the Académie des sciences has decided, as suggested by its president, Professor Appell, dean of the Faculté des sciences, to place itself at the disposal of the national defense. This resolution having been communicated to the government, some of the members were immediately placed, respectively, on commissions on the subjects of wireless telegraphy, aviation, explosives, hygiene and medicine.

The Jean-Jacques Berger prize having been awarded by the five academies of the institute successively to the most meritorious work affecting the city of Paris, was turned over by the Académie des sciences to the marquis de Vogüé, president of the Red Cross, for the military hospital of the institute at the hôtel Thiers.

Prohibition of Absinthe

The prefect of police of Paris forbade the sale of absinthe during the first days of mobilization. The Académie de médecine unanimously voted its congratulations to the prefect of police for this measure. Some of the prefects of the departments promulgated the same rule. At last the sale of absinthe, either to be consumed on the spot or in bottles to be carried away, has been forbidden by order of the minister of the interior throughout all France.

An American Organization

A Franco-American committee has been formed to assist in protecting from the horrors of war the children and young girls in the zone of operations. It will give its aid to such organizations as appear to be able to give the best care to such children and young girls during the war. It will reserve the right of advice and control in the name of its subscribers. The bureau of the committee is the following organization: president, Mrs. Cooper Hewitt; vice-president, Mrs. Robert Bliss; secretary, M. Auguste F. Jaccaci; treasurer, Mr. Frederic R. Coudert. Subscriptions may be addressed to MM. Coudert frères, boulevard Haussmann, 39, Paris, and Coudert Brothers, 2 Rector Street, New York.

The Offer of the Deaf-Mutes

M. Tournade, deputy of the Seine, has sent to the minister of war a letter in which deaf-mutes demand the honor of being utilized for the national defense. They explain that their infirmity is more apparent than real. Most of them are well built, healthy and strong and accustomed to take part in sports and gymnastics. There have formerly been deaf-mute soldiers, some of them volunteers; many of them are excellent shots, sight being more necessary for this than hearing. It is thought, however, that they may be better utilized for military purposes in the capacity of cyclists for carrying secret messages, as members of the ambulance corps, or in the auxiliary services in the national factories of arms and ammunition (where some of them are already employed) or in the national printing establishment, where others are also employed to fill the vacancies caused by mobilization.

War and the Medical Journals

On the fourth day of mobilization, the *Semaine Médicale* informed its subscribers that publication was indefinitely suspended. The *Presse Médicale*, though unable to continue to appear in its regular form, has been continued as a sheet of medico-military information.

Personal

Dr. Augagneur, formerly professor of the Faculté de médecine de Lyon, whose appointment as minister of public instruction I have already mentioned (THE JOURNAL, Aug. 1, 1914, page 415), has just vacated this position, having been appointed minister of the marine.

BERLIN LETTER

BERLIN, Aug. 22, 1914.

Personal

August 6, Alfred Hegar, a prominent German gynecologist, died at the age of 84. Hegar may be regarded as the founder of modern gynecology, especially of operative gynecology. In 1864, he was called to Freiburg as the successor of Professor Spiegelberg, without having previously held a university position. At this place he was for forty years the regular professor and director of the gynecologic clinic. His scientific works extend over the entire field of gynecology. A number of his treatises have a close relation to psychology and social medicine. His principal work is the text-book of operative gynecology which he wrote in conjunction with his pupil, Kaltenbach. A number of years ago, in spite of his advanced age, he founded a journal entitled *Beiträge zur Geburtshilfe und Gynäkologie*, which contributed markedly to his reputation.

The War

Since the numerous bloody encounters, the activity of the surgeons has already begun. Under the specially favorable conditions of transportation, the effort will prevail, I believe, to treat the wounded not in the field hospitals but, so far as possible, to convey them in the hospital trains to their homes where they can doubtless be better cared for in the roomy and orderly regular hospitals. Already hospital trains carrying wounded have reached Stuttgart, Frankfort and even Berlin. There are plenty of surgeons ready for their treatment. In the general enthusiasm, helpfulness and readiness for self-sacrifice which possess the entire German people in a remarkable way, physicians, as a matter of course have not remained the hindmost. Physicians to a far greater extent than necessity demanded have voluntarily offered themselves for the army in the field as well as for service in the hospitals. To be sure, gradually every force which is available may be demanded because in battles between armies numbering millions, the number of wounded will be enormous provided that peace is not concluded sooner than one can dare to hope for. In our army, evidence of whose brilliant organization is shown on all sides in the wonderfully rapid and smooth mobilization, the army medical service is certainly not in the lowest place and one may be sure that it will be completely equal to the task. Unfortunately, already some army surgeons have fallen on the battle-field. Naturally also, the sons of many physicians have already fallen. For instance, a son of Erb, the Heidelberg clinician, as well as the son of Surgeon-General Scheibe, formerly medical director of the Charité.

Since a large part of the civilian physicians who have gone into military service are not familiar with military surgery and military service in general, courses of instruction by active army surgeons will be held in all university towns, especially in Berlin, for the voluntary army surgeons.

Marriages

OSWALD SWINNEY LOWSLEY, M.D., Santa Barbara, Cal., to Miss Katherine V. Staples of Troy, N. Y., at Round Lake, N. Y., August 20.

LEONARD FORREST WOODWORTH, M.D., to Miss Bertha Victoria Fickling, both of LeSueur Center, Minn., September 8.

SOLON WASHINGTON CORNISH, M.D., Everett, Mass., to Miss Beatrice Melbourn Hosking of Chelsea, Mass., September 7.

ARTHUR MONROE CALVERT, M.D., Chicago, to Miss Anna May Gorby of Cave City, Ky., at Indianapolis, September 5.

THOMAS PATRICK HENNELLY, M.D., Pittsfield, Mass., to Miss Helena E. Wickham of South Lee, Mass., August 11.

JOHN CAMPBELL MORFIT, M.D., St. Louis, to Miss Sallie Hockaday Van Deventer of Mexico, Mo., September 1.

DANA FRANK CUMMINGS, M.D., Cherryfield, Maine, to Mrs. Blanche R. Day of Rockland, Mass., September 1.

NORMAN MARSHALL SMITH, M.D., to Miss May Louise Durst, both of Minneapolis, Minn., September 2.

HARRY STARK HOLMES, M.D., Glendive, Mont., to Miss Leota Robinson of Forsyth, Mont., August 29.

HOWARD NORTON FLEXER, M.D., Lakeview, Mich., to Miss Irene E. Singer of Sycamore, Ill., August 24.

EARL H. SNAVELY, M.D., Cedar Grove, N. J., to Miss Elizabeth C. McMahon at Newark, N. J., June 25.

LAWRENCE JEUS KAASA, M.D., to Miss Julia Olivia Thompson, both of Lake Mills, Iowa, September 2.

ARCHIBALD CARY LEWIS, M.D., to Miss Ruth D. Hatton, both of Memphis, Tenn., about June 2.

LEON BRAYTON HARRIS, M.D., to Miss Rosemary Laveck, both of Saginaw, Mich, September 7.

OSWALD PATRICK GOODALL, M.D., to Miss Harriet Blake, both of Los Angeles, September 1.

JAMES R. HARVEY, M.D., Footville, Wis., to Miss Helen Langdon of Chicago, August 26.

Deaths

Martin Hayward Post, M.D. Washington University, St. Louis, 1877; a prominent oculist of St. Louis; a Fellow of the American Medical Association and a member and once president of the American Ophthalmological Society; a member of the staff of St. Luke's Hospital, St. Louis Protestant Hospital, Missouri Baptist Sanitarium and ophthalmic surgeon to the Missouri School for the Blind; who went to Castle Park, Mich., in the middle of the summer to recuperate after an attack of pneumonia; died in Castle Park, September 2, from heart disease, aged 63.

George F. Jenkins, M.D. Missouri Medical College, St. Louis, 1867; a Fellow of the American Medical Association and fourth vice-president in 1903-1904; twice president of the Keokuk Medical Society and president of the Iowa State Medical Society in 1891; president and professor of principles and practice of medicine and clinical medicine, and physiology in Keokuk Medical College; chief of staff of St. Joseph's Hospital; eminent as a teacher and practitioner and universally beloved; died in St. Joseph's Hospital, Keokuk, September 4, aged 72.

Alexander Shirley Leverty, M.D. College of Physicians and Surgeons in the City of New York, 1890; clinical instructor in medicine in Cornell University Medical College; a member of the New York Neurological Society; visiting physician to St. Luke's Hospital; died suddenly in his apartment in New York City, about August 28, from cerebral hemorrhage, aged 48.

Joseph S. Sutphen, M.D. New York University, New York City, 1865; for nearly half a century a practitioner of Newark, N. J., and for many years physician to the Essex County prison; from 1878 to 1880 a member of the Board of Freeholders, and in 1891 a member of the Board of Education of Newark; died at the home of his sister in that city, August 20, aged 74.

William Freeman Nye, M.D. Northwestern University Medical School, 1878; for nearly forty years a practitioner of Minneapolis; a Fellow of the American Medical Association; for four years a member of the board of aldermen and for several years deputy coroner of Hennepin County; died at the home of his daughter at Mound, Lake Minnetonka, Minn., August 30, aged 63.

William Lofland Dudley, M.D. Miami Medical College, Cincinnati, 1885; of Nashville, Tenn.; formerly dean of Vanderbilt University, Nashville, Tenn.; once president of the Southern Intercollegiate Athletic Association and known as the "father of Southern athletics"; died September 8, on a train near Clifton Springs, Mich., from cerebral hemorrhage, aged 55.

Enoch Wood Keegan, M.D. Rush Medical College, 1861; surgeon in the Federal service during the Civil War; for more than half a century a practitioner of Crawfordsville, Ind.; a member of the city council and for one term coroner of Montgomery County; died at his home in Crawfordsville, August 29, from cerebral hemorrhage, aged 78.

Milton M. Walker, M.D. University of Maryland, Baltimore, 1867; a charter member of the Medical Society of Virginia, and corresponding secretary of the society from 1880 to 1882; a Confederate veteran and also surgeon of U. S. Volunteers during the Spanish-American War; died at his home in Oldhams, Va., June 27, aged 71.

William C. Gouinlock, M.D. College of Physicians and Surgeons in the City of New York, 1865; University of Toronto, Ont., 1879; for more than thirty years a resident of Warsaw, N. Y., and identified with the salt industry of that place; died in the Warsaw Hospital, August 30, after an operation for disease of the intestine, aged about 70.

Joseph Henry Byrne, M.D. College of Physicians and Surgeons in the City of New York, 1885; of New York City; a Fellow of the American Medical Association and the New York Academy of Medicine; died suddenly from heart disease in New York City, August 27, aged 49.

Helen DeWitt Justin, M.D. Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1879; of Castile, N. Y.; a member of the Medical Society of the State of New York; died in Rochester, Minn., July 19.

Thomas B. Owings, M.D. University of Maryland, Baltimore, 1852; died at his home in Ellicott City, Md., August 28, from senile debility, aged 84.

Alexander Hazard, M.D. University of Pennsylvania, Philadelphia, 1867; a medical cadet during the Civil War; formerly a practitioner of Ouray, Colo., and later a resident of Philadelphia; died at his summer home in Atlantic City, N. J., August 25, aged 67.

Richard P. Walker, M.D. Kansas City (Mo.) Medical College, 1883; Jefferson Medical College, 1855; a member of the Missouri State Medical Association; died at his home in Belton, Mo., August 26, from cerebral hemorrhage, aged 54.

Alexander Hunter, M.D. University of Colorado, Boulder, 1894; University and Bellevue Hospital Medical College, 1899; local surgeon for the Northern Pacific Railroad at Coeur d'Alene, Idaho; died at his home in that city, August 7, aged 47.

Samuel R. Bird, M.D. University of Pennsylvania, Philadelphia, 1853; formerly a member of the Maryland House of Delegates from Calvert County and later in the customs service; died at his home in Baltimore, August 17, aged 86.

Levi D. Sheets, M.D. New York University, New York City, 1849; surgeon with the cavalry division of the Second Army Corps during the Civil War; died at his home in Glen Ridge, N. J., August 24, aged 88.

William D. Flack, M.D. Northwestern University Medical School, Chicago, 1912; of Farmington, Ill.; died in Wesley Hospital, Chicago, August 26, from meningitis following a mastoid operation, aged 31.

Dudley Leavitt, M.D. College of Physicians and Surgeons in the City of New York, 1890; of West Stockbridge, Mass.; died in a hospital in Pittsfield, Mass., August 23, from malignant disease, aged 50.

William L. Gaboury, M.D. Queens University, Kingston, Ont., 1912; of Pembroke, Ont.; while driving across a railroad track recently, was struck by a train and instantly killed, aged 25.

Henry Greggs Farish, M.D. University of Pennsylvania, Philadelphia, 1849; for sixty-four years a resident of Liverpool, N. S.; died at his home in that place, June 30, aged 88.

Elwin H. Damon, M.D. Cleveland University of Medicine and Surgery, 1878; of Rittman, Ohio; died in a hospital in Cleveland, August 20, after a surgical operation, aged 63.

James Henry Sanderson, M.D. College of Physicians and Surgeons in the City of New York, 1890; died at his home in Worcester, Mass., August 28, from pneumonia, aged 47.

James Bruce Coleridge, M.D. Trinity Medical College, Toronto, Ont., 1901; three times mayor of Ingersoll, Ont.; died at his home, July 7, from nephritis, aged 35.

Samuel D. Griffith, M.D. Starling Medical College, Columbus, Ohio, 1886; of Columbus; died at the home of his brother in Worthington, Ohio, August 19, aged 53.

John N. Wilkins, M.D. National Medical University, Chicago, 1896; formerly of Chicago; died at the home of his daughter in Oakland, Cal.; recently, aged 83.

Frederick Parker, M.D. Trinity Medical College, Toronto, Ont., 1895; of Stratford, Ont.; died suddenly in his automobile, July 11, from heart disease, aged 50.

Arthur Watson Grover, M.D. Western University, London, Ont., 1907; formerly of Brandon, Man.; died at his home in Dresden, Ont., June 28.

Stephen H. Cloyd, M.D. Eclectic Medical Institute, Cincinnati, 1887; died at his home in West Alexandria, Ohio, July 29, aged 53.

Henry Walmsley Welch, M.D. Trinity Medical College, Toronto, 1890; of Okotoks, Alta.; died in Calgary, Alta., July 7, aged 48.

Addison Alexander Armstrong, M.D. University of Michigan, Ann Arbor, 1883; died at his home in Athens, Pa., June 10, aged 55.

Robert Boyd, M.D. Barnes Medical College, St. Louis, 1897; died at his home in Weatherford, Texas, July 10, aged 45.

Almena Jane Baker Flint, M.D. Boston University School of Medicine, 1876; died recently in her apartment in Boston.

John W. Bronaugh, M.D. Washington University, St. Louis, 1861; died at his home in Mounds, Okla., August 6, aged 80.

Charles Edward Winslow, M.D. Rush Medical College, 1882; died at his home in Monrovia, Cal., June 19, aged 59.

Arthur Vaillancourt, M.D. Laval University, Quebec, 1899; died at his home in Waterloo, Que., July 2, aged 38.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PATENT MEDICINES IN GREAT BRITAIN

The Report of the Select Committee on "Patent Medicines" with Its Findings and Recommendations

More than two years ago the British government appointed a Select Committee on Patent Medicines to investigate the nostrum evil in that country. THE JOURNAL has, from time to time, called attention to the fraudulence of the "patent medicine" business across the water, and has emphasized the fact that Great Britain is some years behind the United States in attempting to curb one of the greatest evils that menace the public health. Long after the Food and Drugs Act brought about a certain moderation in claims on the labels of American "patent medicines" as sold in this country, the same nostrums were sold in Great Britain under claims that obtained in this country in pre "pure-food-law" days. In other words, the nostrum labels on the British market contained the same false and fraudulent claims that characterized the labels of the same product in this country before the passage of the Food and Drugs Act.

These facts were brought out in detail in the article, "American and British Labels," that appeared in this department in THE JOURNAL for July 20, 1912. At about the same time a series of educational charts dealing with "patent medicines" and quackery were prepared by the Propaganda Department for the American Medical Association's exhibit at the Fifteenth International Congress on Hygiene and Demography. Some of these charts called attention specifically to the difference in the claims made for the same product on American and British labels, respectively. During the summer of 1912 the British embassy through the British consulate at Philadelphia, requested the American Medical Association to furnish the Select Committee with such data as it had on the subject of "patent medicines" and quackery. A full set of the literature prepared in the Propaganda Department was forwarded, together with some of the educational charts that dealt specifically with the difference in labeling of "patent medicines" in Great Britain and the United States, respectively.

The hearings before the Select Committee were exceedingly interesting and brought out many facts long known to those who had investigated the subject, but little appreciated by the general public. Some of these have been referred to at different times in THE JOURNAL. Those of our readers who are interested in the propaganda against fraud in medicine will appreciate the value of the report that has recently been presented by the Select Committee on "patent medicines," whose findings and recommendations we quote in full.

THE FINDINGS OF THE COMMITTEE

After carefully considering the evidence that was laid before it the committee reported its findings as follows:

"1. That there is a large and increasing sale in this country of patent and proprietary remedies and appliances, and of medicated wines.

"2. That these remedies are of widely differing characters, comprising (*a*) genuine scientific preparations; (*b*) unobjectionable remedies for simple ailments, and (*c*) many secret remedies making grossly exaggerated claims of efficacy, causing injury by leading sick persons to delay in securing medical treatment, containing in disguise large proportions of alcohol; sold for improper purposes; professing to cure diseases incurable by medication; or essentially and deliberately fraudulent.

"3. That this last-mentioned class (*c*) of remedies contains none which spring from therapeutical or medical knowledge, but that they are put on the market by ignorant persons, and in many cases by cunning swindlers, who exploit for their own profit the apparently invincible credulity of the public.

"4. That this constitutes a grave and widespread public evil.

"5. That in British Dominions and foreign countries severe legal restrictions exist, and that there is a tendency still further to strengthen the law against these articles.

"6. That no department of state and no public officer is charged with the duty of controlling the sale and advertisement of proprietary remedies in this country; that the home office and the local government board are virtually powerless in this respect; that the privy council office, though supposed to be specially concerned with the sale of drugs, has no initiative in the matter, and, in fact, it fulfils no useful function in this connection.

"7. That the existing law is chaotic and has proved inoperative, and that successful prosecution for fraud in the advertisement and sale of secret remedies is fraught with the greatest difficulty, though the public prosecutor has perhaps not sufficiently tested the powers of the existing law in respect to such cases.

"8. That consequently the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of impropriety, is practically uncontrolled in this country.

"9. That this is an intolerable state of things, and that new legislation to deal with it rather than merely the amendment of existing laws is urgently needed in the public interest.

"10. That grave injury is caused to the public by the existing large sale of medicated wines.

"11. And that while, for reasons already given, it is not desirable to require the exhibition of formulas of every secret remedy, nevertheless it is improper that under the protection of the law enormous quantities of alleged remedies should be sold the composition of which is unknown to any person except the manufacturers of them; and that, therefore, the formulas of all secret remedies should be required to be communicated to a competent officer appointed under the authority of a minister of state, but that such formulas should not be divulged to any other person except as hereinafter recommended."

THE RECOMMENDATIONS OF THE COMMITTEE

The committee therefore recommends:

"1. That the administration of the law governing the advertisement and sale of patent, secret and proprietary medicines and appliances be coordinated and combined under the authority of one department of state.

"2. That this administration be part of the functions of the ministry of public health when such a department is created, and that in the meanwhile it be undertaken by the local government board.

"3. That a competent officer be appointed to this department, with the duty of advising the minister at the head of the department concerned regarding the enforcement of the law in respect of these remedies.

"5. That there be established at the department concerned a register of manufacturers, proprietors and importers of patent, secret and proprietary remedies, and that every such person be required to apply for a certificate of registration and to furnish (*a*) the principal address of the responsible manufacturer or representative in this country, and (*b*) a list of the medicine or medicines proposed to be made or imported.

"6. That an exact and complete statement of the ingredients and the proportions of the same of every patent, secret and proprietary remedy; of the contents other than wine, and the alcoholic strength of every medicated wine, and a full statement of the therapeutic claims made or to be made; and a specimen of every appliance for the cure of ailments other than recognized surgical appliances be furnished to this department, such information not to be disclosed except as hereinafter recommended, the department to control such statement, at their discretion, by analyses made confidentially by the government chemist.

"7. That a special court or commission be constituted with power to permit or to prohibit in the public interest, or on the ground of non-compliance with the law, the sale and advertisement of any patent, secret or proprietary remedy or appliance, and that the commission appointed for the purpose be a judicial authority, such as a metropolitan police magistrate sitting with two assessors, one appointed by the department and the other by some such body as the London Chamber of Commerce.

"8. That the president of the local government board (or minister of health) have power to institute the necessary

proceedings to enforce compliance with the law, the sale and advertisement of any patent, secret or proprietary remedy or appliance.

"9. That a registration number be assigned to every remedy permitted to be sold, and that every bottle or package of it be required to bear the imprint 'R.N. . . .' (with the number), and that no other words referring to the registration be permitted.

"10. That in the case of a remedy the sale of which is prohibited the proprietor or manufacturer be entitled to appeal to the high court against the prohibition.

"11. That the Department be empowered to require the name and proportion of any poisonous or potent drug forming an ingredient of any remedy to be exhibited on the label.

"12. That inspectors be placed at the disposal of the department to examine advertisements and observe the sale of proprietary remedies and appliances.

"13. That an annual fee be payable in respect of every registration number issued."

Believing that some of the existing laws could be so amended as to give greater protection to the public, the committee recommended:

"1. That the Stamp Acts be consolidated and amended to remove the numerous existing anomalies and unreasonable exceptions. In this connection pure drugs vended entire under a fancy name should no longer be exempt from duty; the distinction between the name of an ailment and the name of an organ the seat of that ailment should be abandoned; and the exemption of medicines generating carbonic-acid gas should be omitted. Further, any reference in advertising matter to the government stamp should be prohibited, and a name of a proprietor or firm should be printed on the stamp.

"2. That the Indecent Advertisements Act be amended on the lines of Lord Braye's Bill."

In addition to the foregoing amendments, the committee recommends the following legislative enactments:

"1. That every medicated wine and every proprietary remedy containing more alcohol than that required for pharmacological purposes be required to state on the label the proportion of alcohol contained in it.

"2. That the advertisement and sale (except the sale by a doctor's order) of medicines purporting to cure the following diseases be prohibited:

Cancer	*Diabetes*	*Locomotor ataxia*
Consumption	*Paralysis*	*Bright's disease*
Lupus	*Fits*	*Rupture (without operation or appliance)*
Deafness	*Epilepsy*	

"3. That all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness be prohibited.

"4. That all advertisements likely to suggest that a medicine is an abortifacient be prohibited.

"5. That it be a breach of the law to change the composition of a remedy without informing the department of the proposed change.

"6. That fancy names for recognized drugs be subject to regulation.

"7. That the period of validity of a name used as a trade mark for a drug be limited, as in the case of patents and copyrights.

"8. That it be a breach of the law to give a false trade description of any remedy, and that the following be a definition of a false trade description:

'A statement, design, or device regarding any article or preparation, or the drugs or ingredients or substances contained therein, or the curative or therapeutic effect thereof, which is false or misleading in any particular.'

"And that the onus of proof that he had reasonable ground for belief in the truth of any statement by him regarding a remedy be placed on the manufacturer or proprietor of such remedy.

"9. That it be a breach of the law:

"(*a*) To enclose with one remedy printed matter recommending another remedy.

"(*b*) To invite sufferers from any ailment to correspond with the vendor of a remedy.

"(*c*) To make use of the name of a fictitious person in connection with a remedy. (But it should be within the power of the department to permit the exemption of an old-established remedy from this provision.)

"(*d*) To make use of fictitious testimonials.

"(*e*) To publish a recommendation of a secret remedy by a medical practitioner unless his or her full name, qualifications and address be given.

"(*f*) To promise to return money paid if a cure is not effected.

"In conclusion, the committee believes that departmental and legislative action as outlined above will not inflict injustice on any patent or proprietary medicine or appliances; that it will, alike by its operative and its deterrent effect, afford the public efficient and urgently needed protection against injury and fraud; and that no measures of a smaller scope will secure this result."

Correspondence

The Levator Ani versus the Bulbocavernosus in Pelvic Floor Repair

To the Editor:—On page 540 of THE JOURNAL of Aug. 15, 1914, appears the following statement by Goldspohn: "The bulbocavernosus, surrounding the vulvar opening, reenforces the inner margin of the trigon; and these together are what some operators have mistaken for the levator ani, whose anterior median edges lie farther within, are less distinct and extend more in an inward and upward direction. This mistake is apparent from the illustrations and *described technic* [italics mine] of Robert T. Morris, Arnold Sturmdorff, C. A. Hall, George B. Somers and C. W. Barrett." It is true that these names were not read in the presentation of his paper, no doubt to spare our feelings.

In the printed discussion he says: "While Dr. Barrett *may now be going deep enough to seize the levator,* he has repeatedly mistaken the inner edges of the trigon and the bulbocavernosus muscle as the levator ani in his illustrations." Dr. Goldspohn's comment, in closing the discussion after my lantern-slides were shown at Atlantic City, was, "Dr. Barrett's illustrations *now show that he goes deep enough but,*" etc. [italics mine].

As I have laid stress for years on the importance, not only of going deep enough to get the levators, but of actually picking up the levators as we would pick up the definite anatomic structures in doing an inguinal herniotomy, I must insist that Dr. Goldspohn is mistaken, and present the following description of my work as it appears in the article quoted by him as proof thereof:

The first part of the article takes up the anatomy, embryology, comparative anatomy and variations of the levator ani muscle and its importance as a part of the closure of the abdomen in upright animals, and the importance of dealing with this muscle in pelvic floor repair. It lays stress on the importance of starting the flap at the vaginovestibular junction so as not to close the vagina with vulvar structures. It then reads: "The dissection is carried between the vagina and rectum until we are above the levator ani muscle (about 1½ inches) and well to the sides to uncover these muscles. The guide is not to be indicated in inches, however, as the test is to be able to find the muscle. With the flap held forward the index finger of the left hand crowds the rectum backward and puts the levator on the stretch. With a strong round curved needle that would about fit the three-eighths circumference of a silver half dollar, and threaded with catgut, we pick up a good bite of the left levator ani muscle as far forward as we wish to unite it; we then include a little of the deep part of the flap, after which the needle picks up a corresponding portion of the levator muscle on the right side. With the same suture and needle we now go back to the left side and pick up the levator ani muscle one-half inch nearer the rectum; the needle is then made to pick up a portion of the rectal wall, after which it picks up a corresponding portion of the levator muscle on the right side" (Barrett: Obstetrics and Diseases

of Women, April, 1909). The description continues in detail to the complete closure of the wound. Conclusion 10 reads: "Two points should be observed in the herniotomy of the pelvic floor: (*a*) The levator ani muscles should be reunited. (*b*) Superficial vulvar structures should not be reunited but left with the natural vulvar opening into the vagina, which may easily be accomplished by making the V-shaped incision at the lower end of the vagina instead of the usual incision in the labia majora."

This form of perineal hernioplasty has been demonstrated to many who have honored me by their presence, and is not so complicated as Dr. Goldspohn seems to think.

CHANNING W. BARRETT, M.D., Chicago.

The above correspondence was referred to Dr. Goldspohn, who replied:

To the Editor:—I read my paper at the Atlantic City meeting in more abbreviated form than was needed to remain within the time limit. I said in closing the discussion, in substance, that I believe that Dr. Barrett is now (meaning recent years) going deep enough within the pelvis to deal with the levator, or that he probably does so; but that he has an illustration in his first publication on this subject (*Am. Jour. Obst.*, etc., April, 1909, p. 565), in which he represents the levator ani muscle as lying in an altogether more conspicuous and superficial position than it is possible to show it in any normal dissection, unless the urogenital trigon and the bulbocavernosus muscles have first been dissected off. This is an anatomic fact, which Dr. Barrett cannot deny without taking issue with the authorities on anatomy cited in my paper; and criticism is in order as long as he does not admit the mistake set forth in that illustration.

ALBERT GOLDSPOHN, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TEST FOR PURITY OF WATER

To the Editor:—1. Please inform me as to a simple test for purity of water.

2. What is best to use to rid a well of unpleasant odors arising, I think, from the overflow into it of surface water impregnated with alkali earth.

JAMES D. KENNEDY, M.D., Ganado, Ariz.

ANSWER.—1. If by "purity" of water is meant inability to convey disease, there is no simple test. Determination of the relative abundance of *Bacillus coli* in a water is perhaps the most important single method now in use, but it must be employed with great care and the results can be properly interpreted only after long experience in water analysis.

2. Unless the source or nature of the unpleasant odor is known it is impossible to tell how to prevent it. Surface water should not be allowed to enter any well. Consult your State Board of Health in regard to the whole question. The board will perhaps make analyses or inspection for you.

CAUSE OF EYELID QUIVERING—COMPOSITION OF "MUM"

To the Editor:—1. I have a patient, woman, aged 52, who for three months has had a marked "quivering" of the right eyelid. Several physicians have tried "practically everything" without giving any relief. At times these contractions of the lower lid and cheek muscles are so violent that the patient is unable to work or sleep. Physical examinations have proved negative. A slight refractive error was corrected two months ago.

2. Can you give me the composition of "Mum," a deodorant of perspiration made by the Mum Manufacturing Company of Philadelphia? I have recently seen a case of a peculiar axillary dermatitis in which this preparation may have caused the trouble. What is the usual deodorizing substance in these toilet articles?

E. E. WISEHART, M.D., Snow Hill, Md.

ANSWER.—1. It is rather difficult to offer any very intelligent advice without knowing more about the daily life and habits of the patient. Has an examination of the accessory nasal cavities been made? Have the teeth been examined, especially those on the right side of the upper jaw? Have the physical examinations failed to show the presence of any general toxemic condition? Does the woman use her eyes excessively for close work of any kind: reading, writing, sewing, etc.? If the foregoing examinations prove negative, it would be wise to have her eyes thoroughly examined under complete cycloplegia so that the refractive error as well as the amount of presbyopia present can be absolutely corrected and the muscle balance carefully worked out. A greatly diminished power of prism convergence especially in eyes under excessive strain, could easily produce reflex symptoms of this kind.

2. This query was answered in THE JOURNAL, Nov. 30, 1912, p. 1993.

LITERATURE ON STATE CONTROL OF TUBERCULOSIS

To the Editor:—I have been appointed one of a commission of five to draw up a comprehensive plan for a thorough antituberculosis campaign in this territory, which plan we are to submit to the Governor not later than Jan. 1, 1915. I wish you would give me a list of books on the subject from which I might get the best idea about hospital formation, sanatoriums, etc., and the various methods of handling this subject by the State Board of Health. With our delightfully even climate we should be able to eradicate this disease almost entirely.

A. I., M.D., Hawaii.

ANSWER.—The following is a list of books and pamphlets; further references are contained in most of these:

Some Plans and Suggestions for Housing Consumptives, National Association for Study and Prevention of Tuberculosis, 105 East Twenty-Second Street, New York.

Battling for Health at Mont Alto, *Pennsylvania Health Bull.*, October, 1912.

A Preliminary Abstract of the Final Report of the California Tuberculosis Commission, *California State Board of Health Bulletin*, January, 1913.

Howard, B. F.: The Bureau of Tuberculosis: Its Work and Plans (California), *California State Jour. Med.*, August, 1914.

Report of the Kentucky Tuberculosis Committee, State Board of Health, Frankfort, Ky.

Taylor, H. L.: Advantages of State Control over Tuberculosis Hospital, *Modern Hospital*, July, 1914.

Kress, G. H.: California State Tuberculosis Commission, *California State Jour. Med.*, August, 1912.

Hinsdale, G.: Atmospheric Air in Relation to Tuberculosis, Smithsonian Institution, Washington, D. C., $1.

A LETTER BY JENNER

To the Editor:—Pasted to the back of the title-page of a book entitled "Professional Anecdotes, or Ana of Medical Literature" (London, 1825, in three volumes, I having Volume II), is an original letter written by E. Jenner. I enclose a copy.

MAX ISENBERG, M.D., New York.

The letter reads:

Cheltenham, Jan. 16, 1807.

Dear Sir.—I congratulate you and Mrs. Phillips on the addition to your flock. It is my intention to be in town soon; but how soon I cannot at the present moment positively say. My movements will be regulated by those of the College of Physicians and the House of Commons. The former have not yet finished their inquiry, which will, when completed, be laid before the House.

This inquiry will lay all those troublesome ghosts which have so long haunted the metropolis with their *ex-facet*, and dismal hootings against vaccination. However, tis all for the best—you may depend upon it the new investigation will prove the touchstone of the vaccine discovery.

I have not yet seen your monthly magazine for the present month. Probably you may not have inserted the very curious and interesting piece of intelligence I recd. from Madrid. This supposition induces me to enclose it. What a glorious enterprize! I have made peace with Spain, and quite adore her philanthropic monarch. Could not this be touched upon by some of those who, *thro'* you, introduce [I cannot decipher the next word] into the world? A word more respecting your little one. Altho' I should be happy to shield it myself from the speckled monster, yet I would advise you not long to wish my coming to town. I will just add that I consider the vaccine lancet in the hand of John Ring, just as safe as in my own.

Pray present my best wishes to Mrs. Phillips and tell her I have not forgotten her civilities.

Yr. very faithful St.

E. JENNER.

LIGHT AUTO FOR PHYSICIAN

To the Editor:—I am seeking information regarding the experience of those who have driven the lighter makes of automobiles. The car I use weighs about 2,000 pounds, and while it gives excellent service as far as speed and power are concerned I find the up-keep expensive as to tires. The country in my section is somewhat rocky and hilly, the territory is rather large and we find a fast car a necessity. Any information I may receive will be much appreciated. Does any one know anything about or use the lately advertised tandem seated cars?

M. J. S., Kansas.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

COLORADO: Denver, October 6. Sec., Dr. David A. Strickler, Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, October 13-15. Sec., Dr. George C. Ober, 125 B St., S. E., Washington.

GEORGIA: Atlanta, October 13-15. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Wallace, October 6. Sec., Dr. John F. Schmershall, Jerome.

ILLINOIS: Chicago, October 6-8. Sec., Dr. C. St. Clair Drake, Springfield.

KANSAS: Topeka, October 13-15. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 29-31. Sec., Dr. E. L. Leckert, New Orleans.

MICHIGAN: Lansing, October 13-15. Sec., Dr. Beverley D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, October 6-9. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, October 27-28. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, October 6. Sec., Dr. William C. Riddell, Helena.

NEW JERSEY: Trenton, October 20-21. Sec., Dr. H. G. Norton, Trenton.

NEW MEXICO: Santa Fe, October 12. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

OKLAHOMA: Muskogee, October 6-8. Sec., Dr. John W. Duke, Guthrie.

RHODE ISLAND: Providence, October 1-2. Sec., Dr. Gardner T. Swarts, State House, Providence.

WEST VIRGINIA: Clarksburg, October 13. Sec., Dr. S. L. Jepson, 81 Twelfth St., Wheeling.

Requires Hospital Intern Year

The annual announcement of the University of Vermont, College of Medicine, just received, states that all students matriculating after Jan. 1, 1915, in addition to the usual four-year course will be required to take a fifth year as an intern in some approved hospital before they are eligible for the degree of Doctor of Medicine. This is the fourth college which has adopted this requirement. The complete list and the session when the requirement became or will become effective are as follows:

	Session of
University of Minnesota Medical School	1910-11
Leland Stanford Jr. University School of Medicine	1914-15
Rush Medical College (University of Chicago)	1914-15
University of Vermont College of Medicine	1915-16

One state licensing board, that of Pennsylvania, now requires that every candidate to be eligible for a license to practice medicine in that state, must have served at least one year as an intern in an approved hospital. The requirement became effective in 1914.

University Graduate Schools of Medicine.

The annual announcement of the University of Minnesota Medical School, just received, includes information regarding a Graduate School of Medicine. The complete list of university graduate medical schools and their location is as follows:

	Location
University of Alabama, Graduate School of Medicine	Birmingham
University of California, Graduate School of Medicine	Los Angeles
Tulane University Post-Graduate School of Medicine	New Orleans
Harvard University Graduate School of Medicine	Boston
University of Minnesota, Graduate School of Medicine	Minneapolis

The opening of such schools in this country by high grade universities is very encouraging and gives assurance that graduate medical instruction on a high plane is rapidly becoming more available in this country.

New York Reciprocity Report

Mr. H. H. Horner, chief of the Examination Division of the New York Education Department, reports that 7 candidates were licensed through reciprocity and one candidate on exemption, from January to June, 1914. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Dunham Medical College, Chicago	(1902)	Indiana
Univ. of Mich., Dept. of Med. and Surg.	(1910); (1912, 2)	Michigan
Eclectic Med. Coll. of the City of New York	(1912)	New Jersey
Miami Medical College	(1908)	Ohio
Medico-Chirurgical College of Pennsylvania	(1899)	New Jersey

LICENSED ON SPECIAL EXEMPTION CLAUSES

	Year Grad.	Indorsed Total No.
Jefferson Medical College	(1886)	1

Book Notices

DIE PROGNOSENSTELLUNG BEI DER LUNGENTUBERCULOSE mit eingehender Berücksichtigung der physikalischen und serologischen Befunde und der therapeutischen Prognostik. Bearbeitet von Priv. Doz. Dr. D. O. Kuthy und Dr. A. Wolff-Eisner. Paper. Price, $4.50. Pp. 572, with 21 illustrations. New York: Rebman Company, 1914.

The authors discuss one of the most important questions of medicine, namely, the prognosis of pulmonary tuberculosis. The importance attached to prognosis is indicated by the fact that it is about the first question to be asked by the patient, who values diagnosis chiefly because it enables the physician to predict correctly the outcome of the disease. The former opinion made the question of prognosis depend almost entirely on the correctness of the diagnosis, since a positive diagnosis of pulmonary tuberculosis was held to mean an absolutely unfavorable prognosis. The advance of science showing the frequency of recovery from pulmonary tuberculosis has made this simple prognosis untenable. The diagnosis must be more carefully made to discover conditions which may have favorable or unfavorable influences on the final outcome. The heredity must be thoroughly worked out and the past history of the patient diligently explored for indications. The authors discuss first these historical data. The prognostic significance of sex, age, occupation, financial situation, temperament, etc., are considered. In a similar way, the present condition of the patient is inquired into and the prognostic significance of the individual symptoms and objective findings thoroughly discussed. The authors then take up the effect of various treatments on prognosis, such as the tuberculin treatment in all its forms. Spengler's I. K. is regarded as still on trial but must not, as has been done, be set down as inactive. It is evidently capable, in some cases, of doing harm. It is possible in the space at command only to indicate the scope of the work. To consider critically the various aspects of the subject and the multitude of various questions raised is impossible. The volume is completed by a list of more than a thousand references to the literature. Considering that most of these references are accompanied in the text by brief abstracts of the respective articles, an idea may be gained of the research whose results are embodied in this volume.

A MANUAL OF INFANTILE PARALYSIS WITH MODERN METHODS OF TREATMENT, INCLUDING REPORTS BASED ON THE TREATMENT OF THREE THOUSAND CASES. By Henry W. Frauenthal, A.C., M.D., Surgeon, New York Hospital for Deformities and Joint Diseases, and Jacolyn Van Vliet Manning, M.D. Cloth. Price, $3. net. Pp. 374, with illustrations. Philadelphia: F. A. Davis Company, 1914.

The authors have here collected a large amount of information concerning infantile paralysis (anterior poliomyelitis) —historical, epidemiologic, etiologic, diagnostic and with reference to its management and treatment—together with a discussion of various theories that have been formulated about it. Interesting are epidemiologic studies of Manning of the Wisconsin epidemics, the statistics with reference to coincident animal paralyses, tables of epidemics and pandemics and the results of animal experimentation. The chapter on differential diagnosis, containing descriptions of the different types of cases, is a valuable one. The considerable portion of the book is devoted to treatment in the acute and preparalytic stages and of the paralyses and deformities resulting from the disease. This is of practical worth to the practitioner as well as to the orthopedist; it

offers definite advice, justified by a large experience in an institution for the treatment of such cases. The high-frequency current is recommended as soon as paralysis has occurred, and other physical measures are emphasized and persistence in their employment insisted on. Especially is it important to employ and persist in measures or exercises which require voluntary effort on the part of the patient, no matter how feeble the response may at first be. Scoliosis, one of the deformities discussed, is attributed to poliomyelitis as the etiologic factor in most instances. Mechanical and surgical measures are set forth, the latter including tendon, nerve and muscle transplantation, though the authors have not much that is new to offer along these lines, and, indeed, insist that the other methods of treatment should first be given the most extended and patient trial. The book is quite satisfactory on account of its definiteness of statement regarding the management of a disease whose sequelae are most deplorable and whose treatment has hitherto not been productive of much success in the way of results.

DAS ULCUS DUODENI. Von Dr. J. Schrijver, Arzt für Magen- und Darmkrankheiten in Amsterdam. Paper. Price, 10 marks. Pp. 184, with 16 illustrations. Berlin: S. Karger, 1914.

The new interest in ulcers of the digestive tract which has followed the investigations of Moynihan and of the Mayo brothers found gastrologists in general, and particularly those of the Continent, rather unprepared for the revelations of the surgical clinic. The profession of England and America readily accepted the new views, especially as to the frequency of ulcer of the duodenum to which Moynihan assigned so characteristic a clinical history, but the clinicians of Germany have been somewhat slow to acquiesce. Schrijver adds his testimony to that of others as finding in a large proportion of cases an ulcer of the duodenum as the cause of chronic dyspepsia from which the patients were happily relieved by timely surgery. His book gives a systematic account of the disease and closes with the histories of a series of thirty-seven cases selected from ninety-five cases occurring in his experience in the last three years. The book is illustrated with a number of plates and several roentgenograms, the latter, however, having an indefiniteness which impairs their utility to most readers.

ABNORMAL PSYCHOLOGY. By Isador H. Coriat, M.D., Second Assistant Physician for Diseases of the Nervous System, Boston City Hospital. Second Edition. Cloth. Price, $2 net. Pp. 428. New York: Moffat, Yard & Co., 1914.

The whole field of abnormal psychology is undergoing modification, influenced by the introduction of Freud's theories and the psychanalytic method of study. This new edition of Coriat has been enlarged by some general outlines of Freudian principles. "For reasons of space" and "because such material does not really lend itself to popular presentation" the author does not go into the subject fully. He is evidently troubled by qualms of which some exponents of the newer psychology have not complained. The theory of dreams is explained in simple language, and there is a new chapter on the prevention of the neuroses and a reprinted article on colored hearing. The book has advanced parallel to recent studies in abnormal psychology and is a worthy publication for those especially interested in the subject.

THE PRACTICE OF SURGERY. By James Gregory Mumford, M.D., Lecturer on Surgery in Harvard University. Second Edition. Cloth. Price, $7. Pp. 1032, with 683 illustrations. Philadelphia: W. B. Saunders Company, 1914.

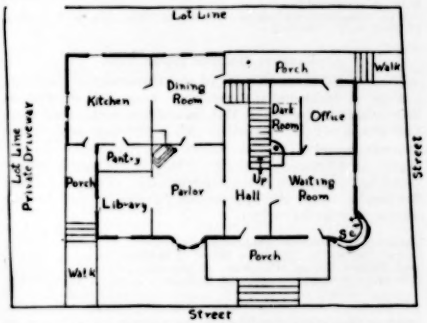
Three years have elapsed since the publication of the first edition of this book. The author has revised the text to keep it abreast of progress, although in the past few years no revolutionary change in surgery has occurred. New cases are cited to illuminate the text and new pictures are added. The book is therefore strictly up to date, and as a clinical surgery cannot fail to prove of value to the reader. The author's style is pleasing, clear, direct and concise in exposition. The many beautiful illustrations are a valuable addition to the text.

Miscellany

A Combined Office and Residence

To the Editor:—My wife and I have been interested in the views and ground-floor plans of physician's offices and residences printed in THE JOURNAL from time to time. While many of them are convenient and attractive, we have failed to see one yet that we like so well as ours. I am enclosing a drawing of the first floor plan.

This building was designed by ourselves about twelve years ago, and, since the residence part pleases Mrs. Dunn and the office suits me, there must be many good features about the house as both of us are rather particular. The office has a conspicuous place in the house without relegating the living rooms to the rear, commands a view of two streets and their corner, and is easy of access from the front. The parlor and library both front a street also. The hall separates the two departments of the house from each other entirely. The kitchen is entered by a walk and porch from one street and the dining room by the same arrangements from the other street. The house is built on a lot 67 by 50 feet and the outside dimensions are 50 by 32 feet. The upper story is not shown, as physicians would hardly be interested in this, but I will say that every room upstairs fronts one of



First-floor plan of combined office and residence.

the streets, excepting the bathroom, and all are of good size. While we admit that the house is not built along conventional lines, we believe it has many features that will commend it to the physician planning to build a combined home and office.

JAMES W. DUNN, M.D., Cairo, Ill.

Is Loco-Weed Disease a Myth?

Poisonous properties have long been ascribed to the pretty, luxuriantly blooming leguminous plants known to the Western cattle ranges as loco or crazy weeds. Being hardy and able to maintain themselves in poor soil, these plants, of two or three main types, are found widely distributed from British America to Mexico and from Kansas to California. Stock-raisers have attributed great losses to the disease caused in horses, cattle and sheep by the eating of this weed, and the state of Colorado paid out nearly $200,000 in bounties for attempts at its extermination between 1881 and 1885.

The theory of Crawford (Crawford, A. C.: Barium, a Cause of the Loco-Weed Disease, Bull. 129, Bureau Plant Ind., U. S. Dept. Agric., 1908. Editorials, THE JOURNAL, Feb. 8, 1908, p. 458, Oct. 17, 1908, p. 1338) that barium causes loco poisoning was rejected by Marsh and Alsberg and Black (Marsh, C. D., Alsberg, C. L. and Black, O. F.: The Relation of Barium to the Loco-Weed Disease, Bull. 246, Bureau Plant Ind., U. S. Dept. Agric., 1912. Editorial, THE JOURNAL, Dec. 21, 1912, p. 2258) on the grounds (1) that barium poison-

ing does not produce the symptoms typical of "locoed" animals; (2) that antidotes to barium have no effect on loco poisoning; (3) that admittedly harmless plants occupying the same areas as the loco-weed contain barium in comparable quantities, and (4) that the barium found in dried loco-weeds is present in almost insoluble form. These investigators, however, do not question the existence of loco-weed disease; in fact, they claim to have produced it experimentally in horses and cattle. They merely leave the question of its cause an open one.

H. T. Marshall, in a recent article (A Summary of Studies of Loco-Weed Disease of Sheep, *Johns Hopkins Hosp. Bull.*, August, 1914, p. 234), based on studies of the sheep of Montana, begun eleven years ago for the Department of Agriculture, though not published by the department, takes the point of view that the condition designated as loco disease is not a single clear-cut malady. In his experience the descriptions given by various ranchmen of the symptoms and cause of the disease did not tally with each other; and necropsy studies on supposedly locoed sheep from different flocks disclosed different conditions. Some sheep were heavily infected with a liver tapeworm (*Thysanosoma actinioides*), others with the sheep-fly (*Oestrus ovis*). Marshall found the ranges too frequently grazed over and the flocks too large for the available grazing-grounds. In his opinion, all the symptoms attributed to loco poisoning could be accounted for by undernourishment and infections. In an attempt to produce loco disease experimentally, four lots of sheep were segregated. One group was fed abundantly on alfalfa, another on half rations of alfalfa, a third on loco-weed without alfalfa, and a fourth on loco and alfalfa. It was found that the sheep fed on loco-weed without alfalfa suffered from starvation; but those fed on alfalfa and loco kept in better condition and gained more in weight than any of the others. None of the animals receiving loco showed any characteristic symptoms. Sheep-fly disease attacked all the flocks during the course of the experiments. The starved animals suffered most, those fed on loco and alfalfa least. Marshall's conclusions are that there are several diseases masquerading under the name of "loco disease," that the existence of any disease definitely attributable to the loco-weed remains to be proved, and that the interests of Western stock-raisers can be best served, not by a campaign against the presumably innocent loco-weed, but by combating the parasitic diseases prevalent on the ranges, as well as the overstocking of ranges and the underfeeding of stock.

It may occur to the reader that Marshall's experiments and observations appear to indicate that sheep are not susceptible of loco poisoning, but not necessarily to prove that this disease has no existence. Marshall says that he could find no locoed animals other than sheep for study even after extended search on the Montana ranges. It seems regrettable that his experimental work did not include cattle and horses.

Efficacy of Tartar Emetic in Superficial Leishmaniosis

G. Vianna of the Instituto Oswaldo Cruz at Rio de Janeiro relates that in Brazil nothing seems to act so effectually on leishmania lesions of the skin and mucous membranes as antimony and potassium tartrate by intravenous injection. The experiences there with salvarsan and neosalvarsan have been entirely negative as far as curing lesions of this nature in the integument. The efficacy of tartar emetic in trypanosomiasis having been thoroughly established in his experimental and clinical experience, he applied it also in a number of cases of destructive leishmania lesions of the face and nasal mucosa, and gives a series of illustrations "before and after," in his article on the subject in the *Annales Paulistas de Med. e Cir.*, 1914, ii, 167. The maximum dose was 10 c.c. of a 1 per cent. solution of the tartrate in physiologic saline sterilized by filtration. He commenced with small doses and in the chronic cases kept up the smallest doses for a long time. He gave the intravenous injections by this technic even to children of 5 and to patients over 60, and never noticed any untoward by-effects except in two cases of nephritis in which the albumin increased in the urine and edema developed under the large doses; on reducing the dose no further injury was apparent even in these cases. The symptoms showing that the limit of tolerance has been passed are pains in joints and muscles or headache. In the patient shown before and after treatment, the destructive affection in the nose and larynx was of five years' standing and was accompanied by extensive ulcerative processes on the legs, all completely cured under the antimony and potassium tartrate treatment.

Fundamentals in Teaching Sex Hygiene

Most of the plans for introducing the subject into the home and school insist that the facts of human reproduction should be taught to the child by an indirect method. This indirect method J. C. Hollister (*Cal. State Jour. Med.*, July, 1914) believes to be wrong, because it does not rest on what to his mind are the fundamentals of sex education. The fundamentals are not to be found in general biology or nature study; they are not plant or animal reproduction; they are not cells nor evolution nor life itself. They are human anatomy and physiology. Any plan that does not recognize the truth of this, any plan that does not rest on these foundations, is inherently weak. It is unnatural, illogical, and has not a sound psychologic basis. If this be true, the child should have a knowledge of human anatomy and physiology before it can appreciate the matter in sex education.

Hollister claims that: 1. Human anatomy and physiology can be taught successfully to the young child. 2. The knowledge of normal human anatomy and physiology is particularly advantageous to the child. 3. There are no important reasons why the genital system should not be taught as part of general anatomy and physiology. 4. Such a plan rests on a sound psychologic basis.

An Economic Aspect of Vaccination

In a recent bulletin of the Rochester (N. Y.) Chamber of Commerce appears the following note from G. W. Goler, the health officer:

"You have noticed that it is our intention to temporarily use the small-pox pavilion at our Municipal Hospital for the treatment of drug habitues. One of the reasons for our being able to do this is because our city has been so remarkably free from small-pox that the small-pox pavilion is vacant most of the time. Rochester is unique in that respect, from the fact that a large number of the large employers have refused to employ men unless they have been successfully vaccinated. Now if we could get more firms to insist on vaccination as a prerequisite for employment we might be able to go for a much longer period without cases of small-pox, and thus be able to use our small-pox pavilion for other purposes."

In these days of stringent economy it will be found that the most important economy is the conservation of the public health.

Mistakes and Sins

"We make mistakes; other people commit sins." A wrong diagnosis after due examination (a thing that happens to all of us) is a mistake, and a pardonable one; a wrong diagnosis arrived at without due examination (a thing that happens to the other fellows) is a sin; medically speaking, it is "the unpardonable sin." That an examination was not allowed is no excuse for a wrong diagnosis. If you cannot convince the patient that an examination is necessary, quit the case; for it is better to lose a patient than to lose reputation. Moreover, do not treat first and examine afterward; for then you may be called on to treat, not only the disease, but also the effects of your own treatment. After an examination has been made, if still in doubt, admit it. If you do not know enough about the case to satisfy yourself, it is not safe to assume that you know enough about it to satisfy the patient; this is not only indifferent ethics, but also bad policy. —Arthur E. Giles. *Clinical Journal.*

Medicolegal

Validity of Statute Providing for Licensing of Practitioners of Specialties

(Bohannon vs. State Board of Medical Examiners et al (Cal.), 140 Pac. R. 1089)

The District Court of Appeal of California, First District, reverses a judgment which sustained the defendants' general demurrer to the complaint in this action wherein the plaintiff claimed that it was the duty of the defendants, as the Board of Medical Examiners, to issue to him a certificate authorizing him to practice a special branch of medicine and surgery. He based his claim on the amendment of 1911 to the medical practice act which provided in substance that the medical examiners might issue a certificate to any person who had practiced a special branch of medicine and surgery for a period of not less than thirty-five years, fifteen years of which time had been within the state of California. The trial court was of the opinion that the amendment, so far as it provided for special certificates, was unconstitutional, for the reason that the classification was unreasonable. The court of appeal however holds otherwise, and a rehearing has been denied by the Supreme Court of California.

The court of appeal says that the provisions of the act complained of clearly show a legislative intent to admit certain persons to practice a special branch of medicine and surgery who have previously violated the law, not because they have violated the law, but because of an acquired experience in given branches of medicine or surgery. It is conceded that the act of the legislature may not have been the most expedient or salutary, but the courts are not concerned with the good or bad policy exercised by that branch of the government. The only argument against the classification here adopted is that it extends a certain exemption to a particular class who for a certain period have been practicing illegally. Does this illegal practice of itself deprive the legislature of the right to adopt regulations under which the persons in this class as such may gain the right to practice medicine and surgery? This court is of the opinion that the question must be answered in the negative. Moreover, the applicant is not qualified for practice by the number of years of his violation of the law, but he must pass an examination, and in addition thereto give a practical demonstration of his successful practice in a special branch, and even then, if he successfully pass these tests, a right to practice the special branch in which he is experienced and proficient only is conferred on him.

The applicant in this case specified as the "special branch of medicine and surgery" which he desired to practice, "the treatment of cancers, tumors, malignant growths and cutaneous diseases." This court cannot judicially say that these disorders are not so correlated that they cannot be classed as a "special branch of medicine and surgery." This question is a matter for determination by the trial court under competent evidence.

Loss of Eye Due to Infectious Disease

(McCoy vs. Michigan Screw Co. (Mich.), 147 N. W. R. 572)

The Supreme Court of Michigan says that several small pieces of steel from the lathe machine on which the claimant was working lodged in his eye. This, it was claimed, caused an irritation and caused him to rub his eye. At the time he was being treated for gonorrhea. Six days after the accident he went to another physician, who removed four pieces of steel from the eye. The next day the physician removed another piece of steel and discovered that the eye had become infected with gonorrhea. The man was then sent to a hospital and subsequently lost the sight of the eye. The industrial accident board affirmed an award made by an arbitration committee of $6.49 a week for 100 weeks, under the workmen's compensation act. But the decision of the board is reversed by the court, which holds that the facts were not capable of supporting the inference that the injury arose out of and in the course of the employment. The court says that the claimant contended that the germs would not have entered the eye had not the steel caused "(a) an inclination to rub—the inciting cause—(b) inflamed condition which made the eye susceptible to the entry of the germs, as in the case of blood-poisoning and erysipelas." It was not reasonable to say, however, that he would not have rubbed his eye if the steel had not lodged there. He might not have rubbed his eye, it was true; but it was just as reasonable to suppose that he might have had occasion to rub his eye without this particular inciting cause. By the medical testimony it conclusively appeared that the infection could have taken place if the steel had not been there. It must be said, from this record, that the loss of the eye was directly and immediately due to the infection caused by the gonorrhea, which it could not be claimed was a risk incident to the employment.

Practice of Medicine by Christian Scientist

(People vs. Cole (N. Y.), 148 N. Y. Sup. 705)

The Supreme Court of New York, Appellate Division, First Department, affirms a conviction of the defendant of practicing medicine without lawful authorization and registration. The court says that the defendant testified that he had been for eight years an authorized practitioner of the Christian Science Church, and that he had maintained an office in a certain building for five years; that when he received his first knowledge of Christian Science he was a sculptor and a poet; that he had never studied medicine in any way; that his average income from his practice was about $5,000 or $6,000; that he did not ask people for money for treating them, but when they tendered it he took it.

The statutory definition of the practice of medicine is broad enough to cover the acts of the defendant because he "holds himself out as being able to . . . treat . . . any human disease," and he did "undertake to treat." The language of the statute is "by any means or method." This covers the means or method used by him. While he denied the material existence of disease and said it was merely mental, yet he undertook to treat people he called patients for what they told him was the matter with them; in other words, what they thought were diseases. He had an office for that purpose; he received fees therefor; he habitually termed what he did his "treatment." He conducted a pecuniarily successful business. He called himself a practitioner, but admitted that the popular phrase was healer. Whatever the believers may think about disease, the law regards it as a fact.

The one question presented here was whether the defendant was permitted to do what he did under the clause of the statute which provides that "This article shall not be construed to affect . . . the practice of the religious tenets of any church." Is the commercialized use of prayer for the avowed purpose of treating all persons seeking cure for all kinds of bodily ills the practice of the religious tenets of a church? In this case this court has no right, and does not presume, to pass on the faith, belief or religious tenets of the Christian Scientists or the efficacy of the methods of their practitioners in treating disease or error. Its sole concern is whether on the facts proved the defendant was properly convicted of practicing medicine without being licensed and registered, and whether the conceded acts come within the exception as to the practice of the religious tenets of any church. "Tenet" is defined by the Century Dictionary as "any opinion, principle, dogma or doctrine which a person, school or sect holds or maintains is true." A man's right to hold and express such is unquestioned. But when he advances from the realm of thought to that of action, he must obey the law. The court reaches the conclusion that the acts complained of constitute the practice of medicine, were not the practice of the religious tenets of any church, and to authorize the defendant to administer the treatment, which he conceded he did, he must have first been duly licensed and registered in accordance with the provisions of the public health law.

Society Proceedings

COMING MEETINGS

Amer. Academy of Ophthal. and Oto-Laryn., Boston, Oct. 19-21.
American Association of Railway Surgeons, Chicago, Oct. 14-16.
Association of Military Surgeons of the U. S., Cincinnati, Sept. 29-Oct. 2.
Delaware State Medical Society, Wilmington, Oct. 13-14.
Idaho State Medical Association, Boise, Oct. 8-9.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Minnesota State Medical Association, St. Paul, Sept. 30, Oct. 1-2.
Mississippi Valley Med. Assn., Cincinnati, Oct. 27-29.
Nevada State Medical Association, Reno, Oct. 13-15.
New Mexico Medical Society, Albuquerque, Oct. 5-7.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Vermont State Medical Society, Rutland, Oct. 8-9.
Virginia Medical Society, Washington, D. C., Oct. 27-30.
Washington State Medical Association, North Yakima, Sept. 21-23.
Wisconsin State Medical Society, Oshkosh, Oct. 7-9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (New York) Medical Annals

August, XXXV, No. 8, pp. 415-478

1 Pathogenesis and Symptomatology of Syphilitic Aortitis. G. Blumer, New Haven, Conn.
2 *Spasmodic Closing of Cerebral Arteries in Its Relation to Apoplexy. A. Gordon, Philadelphia.
3 Analysis of Deaths Occurring in Course of 1,573 Surgical Operations. E. MacD. Stanton, Schenectady.

2. **Spasmodic Closing of Cerebral Arteries.**—Gordon has followed up fourteen cases of this character. Six of the patients are still living; eight died and Gordon succeeded in obtaining permission for autopsies. Every one of the patients was seen by him in each attack. A close analysis of both groups of cases demonstrate one common fact that besides embolism, thrombosis and hemorrhage which are considered as the classical causes of apoplectic strokes there is also a condition which is of hemiplegic or hemiparetic character, but which is produced not by a material lesion of the blood-vessel, but by such a functional disturbance of the vessel wall as to interfere with the circulation and therefore with the function of the nerve tissue supplied by this blood-vessel. The temporary character of this disorder of function, the prompt or rapid recovery from the interfered function, finally and especially the intermittence and frequent repetition of the attacks—all these facts speak in favor of a condition which is totally different from a material obstruction of a vessel with an embolus or thrombus or from a hemorrhage. Intermittent closing and opening of the cerebral vessels are in Gordon's opinion, the only possible explanation of the temporary paralysis. Hemorrhage, embolism and thrombosis could not possibly be taken into consideration in the production of brief and intermittent attacks. Diminution or possible avoidance of arterial irritability is the prime factor in the management of cases of this character.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

August, II, No. 2, pp. 99-153

4 *Relationship of Renal Lesions of Asiatic Cholera to Ordinary Nephritis with Special Reference to Acidosis. A. W. Sellards, Baltimore.
5 How War Has Been Waged in Mexico against the Mosquito. E. Liceaga, Mexico City.
6 Superiority of Intramuscular Injection over Administration by Mouth in Treatment of Malarial Infections by Quinin. S. S. Cohen, Philadelphia.

4. **Renal Lesions of Cholera and Acidosis.**—Investigation of the ordinary forms of chronic and acute renal disease have shown that the increase in tolerance to bicarbonate which was found to occur in the uremia of asiatic cholera is not specific for the nephritis of cholera. It occurs not only in nephritis arising from other infections, but also in nephritides which are free from infection. The cause of this increase in tolerance in cholera Sellards believes is almost certainly due to an acidosis; that is, to an impoverishment of the sources of fixed bases in the body. It is conceivable that this deficiency in carbonates is perhaps due to two factors, namely, (1) a diminished excretion of acid on account of the urinary changes; (2) and a loss of alkali directly by the bowel. The conditions in asiatic cholera afford evidence of the inadvisability of distinguishing between relative and absolute acidosis.

The cause of the increased excretion of ammonia in cholera is not known. Two factors must be considered in its explanation namely, (a) the possibility of a primary disturbance of protein metabolism with defective synthesis of urea, and (b) a secondary disturbance of metabolism with an accumulation of ammonia to compensate for an acidosis. The evidences of acidosis in the uremia of cholera are sufficiently definite to constitute a rational basis for treatment of this condition with alkalies. The examination of the urine or the blood affords a rational guide of the amount of bicarbonate to be administered. The available evidence indicates that it is advisable to give a mildly alkaline solution (½ of 1 per cent. of sodium bicarbonate) early in the course of the disease, before an out-spoken uremia has developed, increasing the quantity if symptoms of uremia appear. As much as 100 gr. of bicarbonate may be required in the course of two or three days. The quantities which have been recommended in the text-books, Sellards says, are wholly inadequate to restore the body to its normal content in carbonates. Moreover, the dosage is determined without any guide other than the general condition of the patient. The modifications of alkaline therapy for cholera, suggested by Wherry, is unnecessarily intensive. A limited use of the normal carbonate in cholera has led Sellards to believe that it is distinctly dangerous, especially in the early stage of the disease, when the administration of alkaline therapy promises most.

Archives of Pediatrics, New York

August, XXXI, No. 8, pp. 561-640

7 Etiology of Whooping-Cough. A. W. Williams, New York.
8 Clinical and Sociologic Aspects of Whooping-Cough. J. L. Morse, Boston.
9 *Treatment of Whooping-Cough. E. E. Graham, Philadelphia.
10 *Vaccine Treatment in Whooping-Cough. W. M. Hartshorn and H. N. Moeller, New York.
11 *Use of Blood-Serum of Immunes in Treatment of Malignant Scarlatina. W. S. Barker, St. Louis.
12 Hemiparesis and Hemiplegia as an Early Symptom in Tuberculous Meningitis. P. S. Chancellor, Chicago.
13 Jackstones Impacted in Esophagus. Report of Three Cases. G. M. Coates, Philadelphia.

9. **Treatment of Whooping Cough.**—The medicinal treatment of pertussis is divided by Graham into two parts: First, drugs or other methods that *per se* have a tendency to lessen the number and severity of the paroxysms. Second, drugs or other methods that are directed to the treatment of the complications of pertussis. To the first an unusual amount of attention has been given; to the second, comparatively little. Among the drugs that *per se* are useful in pertussis is mentioned belladonna. Graham prefers using the tincture, beginning with 1 drop, three times a day, and increasing the daily quantity by 1 or 2 drops until mild physiologic effects of the drug appear, when the increasing of the dose must be cautiously continued.

Antipyrin Graham has never used in the frequent doses so often advised. A single dose at bed-time, or a morning and evening dose has been, in his experience, as much as it was wise to employ. To a child 2 years he gives 2 or 3 grains each night, or morning and night. Bromid of soda, grains v, 3 or 4 times a day, to a child of 3 years, is often of benefit, and codein, trional, heroin, and chloral are often of benefit in allaying cough and inducing sleep. They may be given in a single dose at bed-time, or, if necessary, 2 or 3 times a day.

Quinin has been used in large doses and when so given may reduce not only the number, but also the severity, of the paroxysms. It is not an antispasmodic, and if it produces any effect in these large doses, Graham says, it must be due to some effect on the causal bacillus. Quinin lactate, 10 gm. saline solution, 100 gr. of which 2½ c.c., warm, is injected intravenously, may be used. If given hypodermically into the muscles the effect is favorable, but not as prompt nor as satisfactory as when given intravenously. Hydroquinin has been employed both intravenously and intramuscularly, but its action is more favorable when injected into the vein. A daily dose is given for five or six days, then a dose every second day. No disagreeable local or constitutional symptoms follow either the intravenous or muscular injections. Hydroquinin has been used both intravenously and intramuscularly as a prophylactic with satisfactory results.

From the close study of his own series, as well as many cases seen in consultation in which the vaccine treatment has been used, Graham is convinced that it is a distinct addition to treatment, and is also of more or less use as a prophylactic. In a case of moderate severity in either an infant or an older child, when the number of the paroxysms is small and of a mild character, the vaccine treatment is not necessary, but is often of distinct benefit, in the severe cases, in children of all ages, and its influence as a prophylactic, especially in which infants have been exposed, or in which a frail or possibly tuberculous child has been infected with the pertussis bacillus, should be carefully worked out, and its prophylactic power tested by its use, in a large number of cases.

10. **Vaccine Treatment of Whooping Cough.**—A review of the literature by Hartshorn and Moeller shows that 1,445 cases have been reported. There is not an universal endorsement of pertussis vaccine. A variety of vaccines are being used without definite knowledge of the bacteriology of the individual cases treated. There is a striking lack of negative reports. Apparently the vaccine is harmless in uncomplicated cases. There has been established no definite standard for dosage or for treatment. The dosage generally has been apparently too small. The course of the disease in the majority of cases reported has not been much under six weeks. Its value as a prophylactic agent is still undetermined. It is generally conceded that the earlier the treatment is given the better the result. The vaccine treatment is worthy of a more extensive trial.

The authors have treated eighteen cases of pertussis with vaccine. They conclude that a certain number of cases will respond favorably to a commercial vaccine. Where a commercial vaccine has not proved successful it would seem desirable to try an autogenous vaccine. The initial dose should be at least 50,000,000 in older children, and this may be doubled at subsequent treatments up to 40,000,000 at five days intervals. Further observations regarding dosage indispensable. A certain number of cases will not respond favorably to a vaccine, and in those it should be continued after a trial of 4 doses. The relative value of the combined vaccine as compared to the single culture vaccine is undetermined. In that the improvement in a few cases was immediate and striking, it seems fair to the authors to suggest but not to recommend, its use.

11. **Blood-Serum of Immunes in Malignant Scarlatina.**—Barker cites four cases with three recoveries and endorses this method of treatment. As described in one case the procedure adopted was as follows: At 10:30 p. m. (February 10) about 1¾ ounces of blood was extracted from the mother's arm. Allowing this to stand, after sterilizing with a little boric acid they were able to secure next morning 1½ drams of supernatant serum, which was injected hypodermically in the child at 10:40 a. m. (February 11). This injection of serum was repeated evening and morning until 4 injections, each between 1½ and 2 drams, were given. The condition of the patient at the time of the blood-serum injection was at its worst—in fact it would have been hard to conceive of how it could have been worse. For twelve hours thereafter no change could be noted. Then it first became evident that not only was the case not retrograding, but slightly ameliorating. The cold baths were followed by not so rapid and marked return of hyperpyrexia, dyspnea was less agonizing, the reflexes formerly abolished began to assert themselves and coma grew less profound. This improvement by twenty-four hours, after the first injection was very manifest and continued progressively to convalescence. What was worth noting also in the case was the fact that aural and cervical sequela were absent, although both adenitis and otitis of no mild type had been present.

Florida Medical Association Journal, Jacksonville

August, I, No. 2, pp. 33-64

14 Quackery, Superstition and Robbery, Ancient and Modern, in Treatment of Disease. W. R. Warren, Key West.
15 Cystitis—Symptom. Report of Cases. J. C. Vinson, Tampa.
16 Abuse of Curet. J. K. Simpson, Jacksonville.
17 Medical Inspection and Education of Schoolchildren Most Probable Solution of Hookworm, Malaria and Other infectious Diseases. J. C. Davis, Quincy.

Georgia Medical Association Journal, Augusta

August, IV, No. 4, pp. 107-135

18 Gaseous Edema. H. J. Williams, Macon.
19 Present Status of Pediatric Teaching in Sixteen Southern States Forming Southern Medical Association. C. A. Rhodes, Atlanta.
20 Cacodylate of Soda. J. T. Stukes, Americus.
21 Diagnosis of Pellagra. G. M. Niles, Atlanta.
22 Sanitary Disposal of Human Waste. T. A. Mann, Brunswick.
23 Case of Morbus Ceruleus in an Adult. J. E. Sommerfield, Atlanta.
24 *Experience with Anoci-Association Anesthesia. E. C. Davis, Atlanta.

24. Abstracted in THE JOURNAL, May 2, p. 1428.

Journal of Nervous and Mental Disease, Lancaster, Pa.

August, XLI, No. 8, pp. 489-552

25 *Paralysis Agitans Syndrome with Syphilis of Nervous System. C. D. Camp, Ann Arbor, Mich.
26 *Epilepsy Chiefly from Roentgenologic Standpoint. T. M. T. McKennan, G. C. Johnston and C. H. Henninger, Pittsburgh.
27 Spasmodic Closing of Cerebral Arteries in Relation to Apoplexy. A. Gordon, Philadelphia.

25. **Paralysis Agitans Syndrome with Syphilis.**—A study of the spinal fluid of cases of paralysis agitans has been made by Camp. In ten cases, typical in all respects, it was normal. The cell count in all cases averaged under four, the globulin and albumin were not increased and reducing substance was present. Six of these patients received intravenous injections of neosalvarsan. One patient, age 45, having the disease about two years claimed that the tremor was lessened that his appetite was better and he had less stiffness; objectively, there was a slight lessening of the rigidity but the characteristic tremor persisted. In two other cases there was an improvement subjectively but no objective change. One patient developed severe nausea and vomiting after the second injection and refused further treatment. In two the treatment had no effect whatever. Camp states that a typical Parkinson syndrome may coexist with and be caused by a syphilitic lesion in the central nervous system but that this is not the etiology of the disease paralysis agitans and, furthermore, that any lesion in the central nervous system causing a Parkinson sydrome is likely an irritative rather than destructive one.

26. **Epilepsy Chiefly from Roentgenologic Standpoint.**—Ninety-five cases have been studied by the authors. Seven of these cases were found to be pituitary tumors, and in only one of these was there any other evidence of involvement of the pituitary gland aside from the epileptic attacks. In these tumor cases there was no local bony thickening at the base of the skull, in fact local thinning of the body of the sphenoid or the clinoid processes from pressure was found almost constantly. In sixteen cases there was local thickening of bony tissue that was confined to enlargement alone of the clinoid processes, or to thickening in the anterior fossa of the base of the skull. In 22 cases the local bony change was found in two situations, namely, the clinoid processes and the base of the anterior fossa. In 35 cases there were bony changes in three situations, namely, the clinoid processes, the

anterior fossa and the body of the sphenoid bone. In these cases there is an appearance of thickening along the entire base of the skull. In 15 cases no bony alterations were found.

An analysis of these latter cases shows that six gave clinical evidence of being cerebropathies; two gave clinical evidence of being paresis. One case showed a calcareous degeneration in the center of the pituitary region. One case showed on the roentgenogram that it was a case of internal hydrocephalus. In one case the picture was taken one week after the first attack. In another case, six months after the first attack. The three remaining cases had been epileptic from three to five years with infrequent attacks.

In the first class of cases, namely, in which the clinoids alone were involved or the base of the anterior fossa alone was involved, the average length of time of the existence of the epilepsy was five and a half years. In these cases 14 per cent. showed frequent attacks, as often as once in two weeks. In the second class of cases, namely, with changes in the clinoid processes and the base of the anterior fossa, the average length of time of existence of the epilepsy was seven and a third years. Twenty-five per cent. of these cases had frequent attacks. In the third class, namely, with changes in three places, the average length of time of existence of the epilepsy was four and two-third years. Sixty-six and ⅔ per cent. of these cases had frequent attacks. It would seem evident, therefore, that frequency of attacks has more to do with producing local bony changes than the length of time of existence of the epilepsy. Age does not appear to signify as far as bony changes are concerned. For instance, 1 patient, 5 years of age, exhibited all the features, whereas 1 patient, 56 years of age, showed only one feature.

In the examination of an equal number of roentgenograms in which there was no history of epilepsy, 4 were found with marked clinoids, 2 with a thick anterior fossa, 2 with two features and 1 with three features, about 10 per cent. of alteration, whereas leaving out the cases of tumor the percentage of bony changes found in the epileptics is 80. Only 2 plates showed the three features markedly in cases in which there was no history of epilepsy. It would seem probable from these observations, that the bony changes in epileptics are found only in the so-called essential or idiopathic epilepsy. To sum up: The authors found a condition of local acromegaly in essential epilepsy, which they believe can only be due to venous stasis. This stasis can only come in one way, namely, from pressure within the box-like structure that contains the pituitary gland. The evidence appears to be in favor of a crippling of this gland by pressure. Hypopituitarism would consequently be the result. It is known that epilepsy accompanies this condition. Therefore, it would appear that so-called idiopathic or essential epilepsy is due to a mechanical injury of the pituitary gland.

Kentucky Medical Journal, Bowling Green

August 15, XII, No. 15, pp. 473-508

28 Every-Day Orthopedics. W. O. Humphrey, Louisville.
29 Indications for Cerebral Decompression. G. A. Hendon, Louisville.
30 Diagnosis and Relief of Genito-Urinary Affections. D. Y. Keith, Louisville.
31 Phases of Anesthesia. J. A. Kirk, Louisville.
32 Surgical Treatment of Cancer. R. L. Ireland, Louisville.
33 Two Cases of Puerperal Eclampsia. H. L. Read, Louisville.

Laryngoscope, St. Louis

August, XXIV, No. 8, pp. 709-772

34 Orbital Approach to Cavernous Sinus. H. P. Mosher, Boston.
35 Freezing Interior Turbinate. H. S. Gradle, Chicago.
36 Submucous Operation for Correcting Nasal Deformities. N. P. Stauffer, Philadelphia.
37 Nystagmus Through Closed Eyelids. E. P. Fowler, New York.
38 Operative Treatment of Meningitis. S. J. Kopetzky, New York.
39 Proper Fields of Medicine and Surgery in Diseases of Upper Air Passages. J. A. Thompson, Cincinnati.
40 Air We Breathe. T. Hubbard, Toledo, Ohio.

Michigan State Medical Society Journal, Grand Rapids

September, XIII, No. 9, pp. 515-572

41 *Abderhalden's Sero-Enzyme Test for Syphilis. H. R. Varney and P. F. Morse, Detroit.
42 Gastro-Enterology and Its Problems. B. R. Corbus, Grand Rapids.
43 *Use of Omentum in Abdominal Drainage. L. S. Ramsdell, Manistee.
44 Suggestions in Purchasing and Dispensing of Drugs by Physicians. E. H. Foust, Ithaca.
45 Ectopic Gestation with Rupture into Large Bowel—Report of Case. J. A. Attridge, Port Huron.
46 Case of Marked Indicanuria in Psychopathic Patient. J. H. Agnew, Ann Arbor.
47 Case of Hydrocephalus. A. H. Beifeld, Ann Arbor.
48 Prognostic Value of Functional Test of Kidneys in Case for Prostatectomy. K. M. Scott, Ann Arbor.

41. Abderhalden's Syphilis Test.—On the basis of observations made in 75 cases, Varney and Morse claim that the specificity of the Abderhalden technic applies to syphilis. Syphilitics have in their blood-serum enzymes which react with the protein of the organism. Tissue derived from active human lesions are more specific than syphilitic tissue of the rabbit. Mixed infection in the human lesion gives rise to error in mixed infections as shown in their cases of sinus disease, furunculosis, etc. Further work will be required to determine whether all syphilitics have the power of developing ferment and at what stages of the disease the test is present or absent.

The authors believe that polyvalent antigens prepared from several stains of pure culture of the spirochetes offer the best hope for further success with this technic. The degree of the success with the test varies in proportion to the care and precision exercised in its execution. No matter how carefully the material is prepared or the test carried out, this method does not by any means approximate the Wassermann reaction for practical usefulness.

43. Use of Omentum in Abdominal Drainage.—Tucking the omentum around the infected area and securing by a stitch or two with fine gut, either to itself in such a way it will stay *in situ*, or often by putting a stitch from the omentum through the lower portion of the infected mass, being careful not to puncture into an abscess cavity, is the safeguard adopted by Ramsdell. When the omentum is not available he often uses the parietal peritoneum in the same way, so that any free pus that may be liberated will lodge outside the abdominal cavity. The procedure protects the rest of the abdominal cavity from free pus which would result in general peritonitis or secondary abscesses. It requires less packing and handling of bowels, which is always desirable. It requires a smaller incision and assures better and quicker drainage. It does away with too large a drain and localizes any secondary hemorrhage. It causes less liability to the formation of undesirable adhesions which would later cause functional disturbances.

New Orleans Medical and Surgical Journal

August, LXVII, No. 2, pp. 95-210

49 Early Cases of Bubonic Plague in New Orleans. H. W. Wade and H. L. Staring, New Orleans.
50 Value of Gibson Chart in Diagnosis and Prognosis of Acute Intra-Abdominal Affections. F. B. Gurd, Montreal.
51 Death during Tonsillectomy from Reflex Inhibition. H. Dupuy, New Orleans.
52 Case of Trichono-Cardiasis Rubra. F. M. Johns, New Orleans.
53 Roentgen Examination of Digestive Tract. A. Henriques, New Orleans.
54 Treatment of Early Tubal Pregnancy. Report of Case. W. Kohlmann, New Orleans.
55 Hexamethylenamin in Urologic Therapy. H. W. E. Walther, New Orleans.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

August, XIX, No. 2, pp. 41-75

56 Early Diagnosis and Prevention of Tuberculosis as Factors in Public Health Work. J. J. Lloyd, Jr., Catawba Sanatorium.
57 Defects and Diseases in Schoolchildren and Their Significance. N. T. Ennett, Richmond.
58 Purpura Hemorrhagica. J. M. Hutcheson, Richmond.
59 Hypopituitarism. J. M. Tompkins, Richmond.

Ophthalmology, Seattle

July, X, No. 4, pp. 591-686

60 Neurology of Fusion Faculty. J. F. Burkholder, Chicago.
61 Chorioidal Sarcoma. G. O. Ring, Philadelphia.
62 Melanosarcoma of Chorioid. D. W. Wells, Boston.
63 Efficiency of Eye under Different Systems of Lighting. C. E. Ferree, Bryn Mawr, Pa.

64 Causes of Far-Sightedness, Long-Sightedness and Cataract. F. Schanz, Dresden.
65 Examination for Color Blindness by Lantern Tests. G. H. Taylor, Sydney, New South Wales, Australia.
66 Sympathetic Ophthalmia. Report of Three Cases. W. Pyle, Jersey City, N. J.
67 Operation for Ptosis. J. H. Claiborne, New York.
68 Crossed Cylinders: Are They Scientific Aid in Refraction? E. L. Kniskern, Centralia.
69 Unusual Case of Ophthalmic Migraine. E. W. Alexander, San Francisco.
70 Auto-Intoxication and Eye Diseases. C. W. Hawley, Chicago.

Surgery, Gynecology and Obstetrics, Chicago

September, XIX, No. 3, pp. 303-426

71 *Fate of Transplanted Bone and Regenerative Power of Its Various Constituents. D. B. Phemister, Chicago.
72 Intravenous Ether Anesthesia. H. Kümmell, Hamburg-Eppendorf, Germany.
73 Results of Operation (Laryngofissure) for Intrinsic Cancer of Larynx. E. Schmiegelow, Copenhagen, Denmark.
74 Typhoid Perforation. G. E. Armstrong, Montreal.
75 Suture of Levator Ani Muscle in Perineorrhaphy Operations. H. Jellett, Dublin, Ireland.
76 Hyperthyroidism: Results of Operation. C. H. Mayo, Rochester, Minn.
77 *Origin and Nature of Fetal Movements. E. A. Graham, Chicago.
78 Mastitis Lactantia. A. B. Keyes, Chicago.
79 Chronic Perforation of Peptic Ulcer. Report of Four Cases. J. R. Verbrycke, Jr., Washington, D. C.
80 *Observations of Inguinal Lipomata Based on One Hundred and Fifty-Four Herniotomies. K. Speed, Chicago.
81 Concerning Formation of New Vagina in Case of Congenital Vaginal Malformation. G. Schubert, Beuthen, Upper Silesia.
82 Results of Neglected Chronic Intestinal Stasis. A. C. Jordan, London.
83 Recent Experiments Defining Dangers of Anesthesia. Y. Henderson, New Haven, Conn.
84 *Gonococcus Complement-Fixation Test Employing Specific and Non-Specific Antigens. B. A. Thomas, R. H. Ivy and J. C. Birdsall, Philadelphia.
85 Vesico-Uterine Transposition. T. J. Watkins, Chicago.
86 *Roentgen Diagnosis of Duodenal Ulcer. A. W. George and I. Gerber, Boston.
87 Open Method in Reduction of Fractures. W. R. MacAusland, Boston.
88 Roentgenographic Diagnosis of Prostatic Enlargement by Means of Air Inflation of Bladder. A. Hyman and L. Jaches, New York.
89 *Woven Catgut Splints for Open Treatment of Fractures. D. C. Straus, Chicago.
90 Surgical Treatment of Complete Prolapse of Uterus. E. Novak, Baltimore.
91 Hemostasis: Its Employment in Surgery of Brain. C. E. Dowman, Jr., Birmingham, Ala.
92 Malignant Disease of Retained Testicle. Report of Case. A. P. Butt, Davis, W. Va., and A. Arkin, Morgantown, W. Va.
93 Surgical Helps. G. P. Coopernail, Bedford, N. Y.
94 Two-Eyed Aneurysm Needle. G. T. Tyler, Greenville, S. C.

71. Fate of Transplanted Bone.—Basing his observations on a large number of experiments, Phemister states that osteogenesis in bone repair occurs from the inner layer of the periosteum, from the endosteum, and to a much less extent from bone-cells and the fibrous content of the haversian canals. Viability of the cells of the transplant is dependent largely on their ability to get nutrition and to some extent on their degree of cell specialization. Periosteum and endosteum, being superficially located, receive sufficient nutrition to survive and proliferate. The great mass of bone-cells being away from the surface and surrounded by an extensive and difficulty permeable calcified matrix gradually undergo necrosis and absorption. A few about the periphery and lining the larger vascular spaces as well as the fibrous elements of the latter may survive and proliferate. Blood-forming cells of the marrow, despite their favorable nutrition and probably because of their greater degree of specialization, gradually undergo necrosis. The subsequent changes which the transplant undergoes depend on its composition and location.

Transplantation into a bony defect: Functional demand stimulates the surviving cells of the transplant to osteogenesis. Callus forms at either end which helps unite the transplant and the fragment. Creeping substitution of the dead cortex gradually occurs by the ingrowth of capillaries with dilatation of the haversian and Volkmann's canals, absorption of the old bone, and deposition of new bone in its place. When periosteum and endosteum are left on, the transplant contains the greatest number of living osteogenetic cells. Consequently, union between the ends and substitution of the dead cortex occurs most constantly and rapidly. When periosteum is removed, osteogenesis producing union and substitution occurs from the endosteum and few surviving cells of the cortex, but the process is much slower than when periosteum is left on. When both periosteum and endosteum are removed, new bone formation from the few surviving cells is slight, and union with the ends of the fragments and substitution of the dead bone are very much delayed. If such a transplant is cut into small pieces before implantation more cells survive because of the increase in surface and facilities for nutrition and greater functional irritation. Consequently, considerable callus forms from each piece and, fusing with that from the others and from the ends of the shaft, rapidly restores the continuity of the shaft. Ossification of the callus proceeds from the surface of each piece and substitution of their dead portions gradually occurs. Periosteum transplanted into ulnar defects and in subperiosteal ulnar resection failed to regenerate bone and restore the shaft, but in subperiosteal resections with reimplantation of cortex either alive or after boiling it formed a layer of callus about the reimplanted portion. Subperiosteal resection of the humeral shaft in the young was followed by regeneration of the shaft. Periosteum gets its chief impulse for osteogenesis not from any injury to itself but from the injured bone to which it is attached or intimately related and which demands repair.

Transplantation into soft parts: The same portions survive as in a bony defect but since there is no functional demand for bone in this location little proliferation or substitution occurs and the transplant is gradually absorbed. Transplanted periosteum produces little or no new bone for the same reason. The presence of an infection, if severe, results in death and failure of the transplant; if mild, there is set up in it an osteomyelitis with excessive proliferation and absorptive changes, but the transplant takes and is functionally a success. The details of all the experiments are given by Phemister.

77. Origin and Nature of Fetal Movements.—All Graham's experiments were made with guinea-pig far advanced in pregnancy. The method adopted for direct observation of the fetal movements has been opening the uterus but leaving the membranes and placenta attachment undisturbed. The methods used to produce asphyxia of the fetus have been: (1) ligation of uterine vessels, (2) occlusion of the trachea of the mother, (3) direct inhalation of CO_2 by the mother. In all the experiments which involved opening of the abdomen a light ether anesthesia was maintained throughout; and the animals were killed with ether at the close of the experiments without being allowed to regain consciousness.

Graham found that asphyxia of the fetus of sufficient grade will result in the production of fetal movements, more or less severe. The movements thus produced vary from mere attempts at respiration, sometimes resembling the fetal hiccup of Mermann, to more muscular contractions, simulating the general convulsions of CO_2 poisoning seen in the adult. At times these are sufficiently violent to be seen through the abdominal wall as distinct shocks. All of the generally recognized varieties of fetal movements, except those concerned with swallowing and sucking, have been produced experimentally by methods which induced an asphyxia of the fetus. The intra-uterine respiratory efforts are not accompanied by an aspiration of any appreciable quantity of fluid into the lungs and hence are not incompatible with life after birth. The explanation of this is not clear, but probably the contact of the skin with the air is an important factor in opening up the respiratory passages. The hypothetical intra-uterine rhythmical respiratory movements of Ahlfeld (*physiologische intra-uterine Athmungsbewegungen*) were not observed. The suggestion is made that the various active movements of the fetus experienced by many pregnant women in the latter part of pregnancy are expressions of a more or less severe, but usually transient, asphyxia of the fetus.

80. **Inguinal Lipomata.**—Of 154 herniotomies performed by Speed, lipomata were found present in the opened canal 73 times, giving a percentage of 47.4.

84. **Gonococcus Complement-Fixation Test.**—Reviewing the results of their work to date with especial reference to a study of specific versus non-specific antigens to be reported in detail in a later communication, the authors have deduced the following facts: 1. Very rarely have polyvalent antigens prepared from meningococci, pneumococci, streptococci, staphylococci, colon bacilli or cornybacteria sufficed to fix complement. This does not jeopardize the specificity of the gonococcus antigen, since it is explained on the basis of supervention of a mixed infection. 2. In 10 per cent. of serums examined a weakly positive result was obtained with polyvalent *Micrococcus catarrhalis* antigen; in these cases the reaction was much more marked with the various gonococci antigens. Thus it may be inferred that the association between the gonococcus and the *M. catarrhalis* is not positively and absolutely defined; and it is not unlikely, on the other hand, that a culture of the *M. catarrhalis* is occasionally included in a supposedly specific polyvalent gonococcus antigen, while on the other it is undoubtedly true that a mixed infection, often due to the *M. catarrhalis*, exists in patients suffering from gonorrhea and its complications.

3. A negative gonococcus fixation test does not necessarily mean that the patient is not infected with the gonococcus; in a primary uncomplicated acute case the authors have never observed a positive reaction prior to the sixth week, nor have they obtained positive reactions in which the anterior urethra or vagina alone were involved. 4. A positive result apparently is more specific than the Wassermann reaction, since thus far the authors have found no disease other than gonorrheal in which a positive result was obtained. 5. A positive reaction has been discovered in 21 per cent. of patients supposedly clinically cured; such patients, therefore, should not be discharged from treatment or observation until a negative response is obtained, provided the patient has not been the recipient of immunotherapy. Thirty-three per cent. to 75 per cent. of patients with chronic posterior urethritis, prostatitis, and seminal vesiculitis, with recurrent exacerbations, demonstrate a positive reaction. Sixty-six per cent. of all stricture cases have shown a positive result. 8. Approximately 100 per cent. of cases of active epididymitis or arthritis, at least by the fifth week, have demonstrated a positive gonococcus complement-fixation reaction. The test has proved of value in gynecology in the differential diagnosis of various pelvic inflammatory diseases from one another and from neoplastic formations; also in the differentiation of certain acute and chronic arthritides. Sociologically, the gonococcus complement-fixation test seems destined, along with the Wassermann, to play an important rôle in the future in determining the matrimonial fitness of candidates.

86. **Roentgen Diagnosis of Duodenal Ulcer.**—Of 82 operated cases of duodenal ulcer an exact diagnosis was made by George and Gerber in 78 cases. In 3 cases duodenal ulcer was reported, but there were minor errors and diagnosis. In 1 case there was a complete failure of diagnosis. Of 150 patients operated on in whom a negative roentgen diagnosis was made, duodenal ulcer was not found in any case. In 1 necropsy a duodenal ulcer was found, in which the previous report had been negative.

89. **Woven Catgut Splints for Treatment of Fractures.**—Straus uses catgut woven in the form of a rug with long fringed ends, the rug to be just a little shorter than the circumference of the bone, and the fringed ends to be used to tie the rug about the bone as a splint. These ends when tightly tied stretch the rug about the bone, holding it firmly in place. The idea has been carried out in a number of experiments on dogs. The splints have been made of rough raw German catgut No. 4 and No. 5. The raw gut has been given to an expert oriental rug weaver, who weaves it on a hand-loom, the gut being wet during the process of weaving to soften it so that it is possible to make a very closely woven rug. The rugs are long enough to encircle the femur of a large dog, and are so woven that the length of the rug can easily be reduced to exactly fit any bone of a smaller circumference. This is of great practical importance and is accomplished by having the strands that run the long way of the rug (the warp) consist of separate fibers, while the cross fibers of the rug (the woof) are made of one long, continuous strand of gut which is alternately woven over and under the long parallel strands. To shorten the rug to fit any given bone, it is only necessary to cut one end of this cross-strand free, unravel a sufficient amount, and then tie the free end again. Thus in human work it would be necessary to have only two sizes of rugs, one for large bones (femur, humerus) and one for small bones (radius, ulna). When the finished rug is dry it is cut from the loom and is ready to be sterilized. This has been done by the Bartlett iodin method only.

The bone ends are exposed by a free linear incision and the muscles gently separated from the bone; the catgut rug is then introduced around the bone, care being taken not to injure or displace the periosteum. Being sure that the line of fracture is at the center of the splint, begin tying the two opposite free ends of each of the longitudinal strands of the rug. If it seems desirable to reenforce the splint, the free ends after having been tied are long enough to make it possible, after having tied the first series of suture ends to carry the free ends around the tied splint and tie each pair of ends again over the original row of knots, so as to thus double the thickness of the splint. When all the strands have been tied and cut, the soft parts are united over the bone with No. 0 plain catgut, the fascia and skin each similarly closed, and the limb put up in a plaster cast, which is left in place for three or four weeks. The result in the ten dogs on which this procedure has been tried have been encouraging. However, with the splints as they have so far been used there is some interference with external callus formation, the only apparent external callus being just beyond either end of the splint in the form of a collar of callus; the internal and intermediary callus seem well developed. There have been three cases of non-union. One was due to local infection. The second was in a dog that died from an infected struma. The third was in a dog that contracted the mange and was killed. No trace of the splint is to be seen at the end of three weeks and no inflammatory reaction seems to be produced by the presence or absorption of the splint, except in a few cases in which a serous oozing occurred soon after the operation. This ceased shortly, however, and the healing was *per primam*.

United States Naval Medical Bulletin, Washington

July, VIII, No. 3, pp. 357-540

95 Economy and Waste in Naval Hospitals. E. M. Shipp and P. J. Waldner, U. S. Navy.
96 New Method of Physical Training in U. S. Navy. J. A. Murphy, U. S. Navy.
97 Study of Etiology of Gangosa in Guam. C. P. Kindleberger, U. S. Navy.
98 Unreliability of Wassermann Tests Using Unheated Serum. E. R. Stitt and G. F. Clark, U. S. Navy.
99 Laboratory Note on Antigens. G. F. Clark, U. S. Navy.
100 Prevention of Mouth Infection. J. Head, Philadelphia.
101 Medical Department at General Quarters and Preparations for Battle. A. Farenholt, U. S. Navy.
102 Bacteriologic Index for Dirt in Milk. J. J. Kinyoun, U. S. Navy.
103 Brief Description of Proposed Plan of Fleet Hospital Ship, Based on Type Auxiliary Hull. E. M. Blackwell, U. S. Navy.
104 Diagnostic Value of Cutaneous Tuberculin Test in Recruiting. E. M. Brown, U. S. Navy.
105 Sanitary Mess Table for Hospitals. F. M. Bogan, U. S. Navy.
106 Suggested Improvement of Navy Scuttle Butt. E. M. Blackwell, U. S. Navy.
107 Malaria Cured by Neosalvarsan. F. M. Bogan, U. S. Navy.
108 Case of Rupture of Bladder with Fracture of Pelvis. H. F. Strine and M. E. Higgins, U. S. Navy.
109 Use of Succinimid of Mercury. T. W. Reed, U. S. Navy.
110 Points in the Post-Mortem Ligation of Lingual Artery. O. J. Mink, U. S. Navy.
111 Wounded at Vera Cruz. H. F. Strine and M. E. Higgins, U. S. Navy.
112 Case Reports from Naval Hospital, Portsmouth, N. H. F. M. Bogan, U. S. Navy.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

August 22, II, No. 2799, pp. 349-384

1 Evolution of Shockless Operation. (Anoci-Association). H. M. W. Gray.
2 Opium and Omnopon. H. Sahli.
3 Treatment of Wounded in Naval Warfare. D. W. Hewitt.
4 Hygiene of Reading and Near Vision. J. H. Parsons.
5 Teaching of Ophthalmology. A. M. Ramsay.
6 Case of Disseminated Sclerosis Treated by Inoculation. H. L. Smith. Clinical Report. T. G. Stewart.

Journal of Pathology and Bacteriology, London

July, XIX, No. 1, pp. 1-138

7 Histology of Some Lesions Present in Pneumonic Plague. W. Lien-Teh and G. S. Woodhead.
8 *Cytology of Blood in Passive Immunity. J. S. C. Douglas.
9 *Excretion of Urinary Solids: Urine in Nephritis of Scarlet Fever and Diphtheria. J. P. Kinloch.
10 Employment of Fat Stains for Differentiation in Preparing Museum Specimens. R. H. Malone and L. Heddick.
11 Differential Staining of Fats. E. T. Bell.

8. **Cytology of Blood in Passive Immunity.**—Evidence is adduced by Douglas that in rabbits, as in man, the leukocytes are more numerous at 2 p. m. than at either 10 a. m. or in the evening, and that this is independent of the time of feeding. The increase in the number of leukocytes in man was proportionately the same at noon and at 3 p. m. when an artificial leukocytosis was produced. The introduction of horse-serum subcutaneously into man produces no change in the amount of hemoglobin or in the number of red cells, but produces a leukocytosis.

The injection of antitoxin in man produced no specific recognizable alteration in the cytology of the blood, the rate of the rise and of the fall in the leukocytes being the same whether a normal or an antitoxic serum was injected. The introduction of antimicrobial (antistreptococcic) serum was followed by an absence of any leukocytosis in the case of man. This probably depends on a failure of the body to respond with a leukocytosis to an injection of serum which follows a series of previous ones, each of which has succeeded in producing such a change, comparable to the failure in the power of antibody formation described by Axel Jörgensen after repeated daily inoculations of antigen, the two phenomena being possibly closely related.

The varieties of cells taking part in the leukocytosis as a response to serum injections in the case of man are (1) the polymorphonuclear and the eosinophilous group, and (2) the transitional and large mononuclear group, no change being demonstrable in (3) the lymphocyte group or (4) the mast cell group. No change could be detected in the hemoglobin percentage or in the numbers of red corpuscles in rabbits as the result of injecting rabbit-, goat- or horse-serums, whether normal or containing antibodies, by whatever route they were introduced.

No change could be demonstrated in the numbers of leukocytes in rabbits as a result of the introduction of rabbit- or goat-serums, whether normal or containing agglutinin, by whatever route they were injected, while a leukopenia may be found to follow the introduction of horse-serums, whether normal or containing antibodies. No evidence has been found that the antibodies as such have any influence on the cytology of normal blood in the case of either man or rabbits.

9. **Excretion of Urinary Solids.**—Kinloch found that a typical diminution in the quantity of urine occurs in the glomerular nephritis of scarlet fever and diphtheria, and this diminution is present at the very commencement of nephritis. In the pure forms of interstitial nephritis in scarlet fever and diphtheria, no diminution of urine occurs other than can be explained by the elimination of an extra amount of water by the lungs and skin in the presence of pyrexia. In the glomerular nephritis of scarlet fever, nitrogen is diminished both in percentage constitution and in daily output during the acute period of the illness. In the glomerular nephritis of diphtheria, no initial percentage diminution occurs. In the interstitial nephritis of scarlet fever and diphtheria, nitrogen is freely eliminated from the onset, and this continues throughout the nephritis.

An immediate and long-continued diminution of chlorin occurs in glomerular nephritis in scarlet fever. The elimination of chlorin is free and regular in the interstitial nephritis of scarlet fever. A diminution of chlorin occurs at the onset of glomerular nephritis in diphtheria, and with the early diuresis the chlorin output is at once increased. The output of chlorin is free in the interstitial nephritis of diphtheria when uninfluenced by diet or pyrexia.

The daily output of phosphorus in the whole series of cases is commonly low. No general ratio between the output of nitrogen and sulphur can be determined. In the glomerular nephritis of scarlet fever and diphtheria the daily output of ethereal sulphates is commonly large in the acute stage of the nephritis.

The examination of the urine in various forms of nephritis indicates certain functions of the kidney. The glomerulus normally passes out by far the greater part of the water of the urine. This action of the glomerulus is in great part destroyed in glomerular nephritis. The glomerulus may excrete a larger proportion of nitrogen than has hitherto been assumed. This would explain the diminished nitrogen percentage and daily output in the acute period of glomerular nephritis in scarlet fever in which the glomerular lesion is extensive. The retention of nitrogen might, however, be explained by supposing that it is dependent on secondary body changes resulting from the renal disease. A special secretory function is to be attributed to the glomerular epithelium in order to explain the excretion of chlorids. This is well shown in the glomerular nephritis of scarlet fever, in which the diminished chlorid phase continues in the presence of free urinary excretion, with augmented diet, and in the absence of pyrexia. The excretion of chlorids follows a definite course in each type of nephritis.

The glomerulus appears to have little effect on the excretion of phosphates. With increased diuresis in glomerular nephritis the percentage of phosphates in the urine tends to be diminished, and the total daily output tends to be increased. The glomerulus excretes sulphates independently of the excretion of nitrogen. This is found early in the glomerular nephritis of scarlet fever in which a high percentage of sulphur accompanies a low percentage of nitrogen. In cases of nephritis in which nitrogen is freely eliminated from the first, a high sulphur output accompanies the high nitrogen excretion. The excretion of nitrogen appears to be unaffected by the degenerative changes found in the tubular epithelium.

Reabsorption of chlorids in the renal tubules does not explain all the variations of chlorid excretion. The lesions found in the cells of the convoluted tubules in interstitial or glomerular nephritis do not appear to influence the excretion of phosphates. Any reabsorption in the renal tubules has not been shown definitely to influence the percentage or total daily output of phosphates and sulphates.

Lancet, London

August 22, II, No. 4747, pp. 481-536

12 Heredity in Man. W. Bateson.
13 *Diagnostic Value of Complement Fixation Reaction in Tuberculosis. J. McIntosh, P. Fildes and J. A. D. Radcliffe.
14 Sepsis in Recognition and Non-Recognition of Syphilis. E. M. Corner.
15 Importance of Very Thorough Examination in Cases of Foreign Body Alleged to Have Been Swallowed or Inhaled. E. D. Davis.
16 Case of Congenital Atresia of Bile-Ducts. S. Wyard.

13. **Complement Fixation Reaction in Tuberculosis.**—The technic employed by the authors in carrying out the tests resembles in principle that elaborated for the Wassermann reaction. As an indicator they used both sheep and ox corpuscles, and found the latter to be of advantage when the test serum contains an excess of the so-called "normal amboceptor" for sheep's corpuscles. Further, they allow one and one-half hours instead of one hour as in the Wassermann reaction for fixation to occur. The antigen was a simple emulsion of living tubercle bacilli. The strain

employed in the tests was of the human type isolated from a case of phthisis, and was grown on Dorset's egg medium.

Group 1. "Pathologically certain" cases: In this group are included only those cases of tuberculosis in which there was definite histologic or bacteriologic evidence of tubercle. An analysis of 85 cases gives the following results: Phthisis, 43 cases, 33 positive, 76.7 percentage, surgical tuberculosis (with the exception of tuberculous glands), 26 cases, 21 positive, 80.7 percentage, tuberculous glands, 16 cases, 6 positive, 37.5 percentage. Group 2. "Clinically certain" cases: In this series the diagnosis of tuberculosis rests on clinical examination only, as opposed to bacteriologic or histologic. In this series the results were as follows: Phthisis and pleurisy, 18 cases, 10 positive, 55.5 per cent., surgical, 42 cases, 30 positive, 71.4 per cent. Group 3. Tentative cases: The serums of 74 cases in which the diagnosis of tubercle was purely tentative were examined, and of these 18 were positive. The positive results included cases of pulmonary fibrosis, pleurisy, enlarged cervical glands, ulceration of bladder, synovitis, persistent pyrexia, etc. Group 4. Controls: The control cases, 87 in number, were taken without any selection and included a great variety of disease conditions in addition to normal individuals. All were negative with the exception of 3 cases, these being 2 cases of leprosy and 1 of Addison's disease. The serums of 18 syphilitic patients with positive Wassermann reactions were tested and all reacted negatively. In the face of these controls the reaction is regarded as being highly specific.

Annales de Médecine, Paris

June, 1, No. 6, pp. 593-680

17 Epithelioma of the Thymus in a Case of Myasthenia. H. Claude, L. Géry and R. Parak.
18 Unusual Location of Murmur with Mitral Insufficiency. C. Pezzi and E. Bordet.
19 *Resistance of Blood-Corpuscles to Hemolysis by Saponin. E. May.
20 The Crisis in Pneumonia. L. Cotoni. Commenced in No. 5.
21 Signs of Interlobar Pleurisy. (Syndrome pseudopleurétique de la base dans les pleurésies interlobaires.) G. Laroche, Brodin and Huber.
22 Abscess in Side of Pharynx. A. Broca.
23 Urobilinuria as Sign of Liver Disease. M. Labbé and P. A. Carrié.

19. Test Hemolysis with Saponin.—May reports extensive study of the hemolysis induced by a 1 to 10,000 solution of saponin in a 9 to 1,000 solution of salt. The reaction depends on the cholesterin and lecithin content, and hence the corpuscles present a normal resistance to saponin in disease not affecting the lipoidemia, such as pernicious anemia and Bright's disease.

Archives des Maladies de l'App. Digestif, Paris

July, VIII, No. 7, pp. 361-420

24 *Functioning of Gastro-Enterostomy Opening with Permeable Pylorus. (Les bouches gastro-intestinales dans le cas de pylore perméable.) H. Hartmann.
25 *Fatal Acute Ulcerative Colitis. C. Flandin.
26 *Treatment of Hemorrhagic Rectocolitis with Tendency to Erosions. G. Friedel.

24. Gastro-Enterostomy Opening with Permeable Pylorus.—Hartmann reports a number of experiments on dogs and the roentgenoscopic findings in nineteen patients after gastro-enterostomy. In all the clinical cases the motor functioning of the stomach had not been impaired and no evidence of stenosis of the pylorus had been found at the operation. Recently reexamined after an interval ranging from one to eleven years, it was found that all the stomach content was evacuated through the pylorus in one case, and all through the artificial opening in eleven; in the others part passed through each opening. These clinical experiences confirm his experimental conclusion that the fact that the pylorus is and remains permeable does not inevitably render the artificial opening useless. A gastro-enterostomy in the antrum of a permeable pylorus amounts to the physiologic exclusion of the pylorus and the duodenum. But when the artificial opening is made nearer the cardia, in the reservoir part of the stomach, then this opening is useless for evacuation of stomach contents if the pylorus is permeable.

25. Acute Fulminating Colitis.—Flandin's patient was a previously healthy woman of 44 taken suddenly with acute dysenteriform colitis, fatal in less than four weeks, during which her sufferings were extreme. Some improvement followed exclusion of the large intestine, an artificial anus having been made in the small intestine, but the condition already was beyond repair and fatal perforation soon followed. The course is usually rapid and menacing in these cases of acute ulcerative colitis. Mummery has compiled eighty cases with 50 per cent. mortality.

26. Hemorrhagic Rectocolitis.—Friedel refers to cases in which there does not seem to be any ulceration and the blood gathers on the walls of the bowel like the sweat on the brow. There seem to be minute erosions, scattered or confluent, and the bleeding occurs at these points. He describes nine cases in detail. Hemorrhagic colitis of this type develops with intervals of apparent health; after fifteen or twenty days of diarrhea and hemorrhages all seems to return to normal. With cancer in this region there is usually less loss of blood at one time but the slight hemorrhage keeps up continuously. Treatment should act on the colitis and the rectitis, healing the erosions and supplementing or correcting insufficient gastric digestion or other dyspepsia by appropriate measures. Water and oil, he says, are seldom tolerated by the rectum but a mucilaginous vehicle is tolerated and acts as a kind of dressing for the inflamed mucosa. Surgical treatment is a comparatively serious matter and the outcome is not always satisfactory, while it entails danger of a permanent fistula. Medical measures, on the other hand, have always given him good results, while the technic is simple, easy and within the reach of all.

Journal de Chirurgie, Paris

July, XIII, No. 1, pp. 1-144

27 *Operative Treatment of Ankylosis of the Knee of Gonococcal Origin. (Traitement sanglant des ankyloses du genou d'origine gonococcique.) J. Okinczyc.
28 Fracture of Bones and Wounds of Joints during Balkan War. Laurent.

27. Ankylosis of the Knee of Gonococcal Origin.—Okinczyc deplores the too frequent custom of publishing cases before a decisive judgment on the outcome of operative treatment is possible, and the tendency to publish only the favorable cases. He recently encountered a man whose stiff knee had been resected a few months before with interposition of a flap of aponeurosis, but the knee is now stiff again. He has been able to find only eighteen cases on record of operative treatment of ankylosis of the knee of gonococcal origin, including Murphy's two cases, and the ultimate outcome is known in only five. Even in these the results of treatment were generally poor, so that there is little evidence to encourage operative interference unless the knee is severely crippled by the ankylosis or when both knees are affected, or, with incomplete ankylosis, there is pain when the leg is used. On the whole, it is much safer to respect a solid ankylosis and not to try to restore functioning to the knee. The gonococcal process is peculiarly prone to recur as the lesion usually extends into the tissues around the joint. Payr waited a year after the last symptoms before operating and then removed the capsule, ligaments, and fibrous tissue around the joint, leaving the musculature intact, and interposing pedunculated flaps of aponeurosis lined with cellular-fat tissue from the vicinity, and he has reported perfect functioning of the knee two years after the operation at two sittings, seven weeks apart. In his two other cases, with less extensive operations, the ankylosis has recurred in one. Okinczyc cites in conclusion two cases successfully treated by Morestin with arthrectomy to insure firm ankylosis after failure of various other measures.

Lyon Médical

July 26, XLVI, No. 30, pp. 141-180

29 Foreign Body in Left Bronchus; Harmless Extraction with Bronchoscopy; Three Cases. J. Garel, A. Gignoux and Arcelin.
30 Delivery of Living Pygopagus. Lafourcade and Pfeiffer.

August 2, No. 31, pp. 181-220

31 Gastro-Intestinal Disturbance from Kidney Calculi. L. Tixier.

Presse Médicale, Paris

August 1, XXII, No. 61, pp. 585-596

32 Paralysis of the Quadriceps Muscle. Ducroquet.
33 Apparatus to Correct Overriding of Stumps with Fracture of Long Bone. H. Hantcher.
34 Periodicity in Biology. (Les phénomènes périodiques.) Techoueyres.
35 *Auscultation Findings with Heart-Block. (Dissociation auriculo-ventriculaire complète.) G. Clarac and C. Pezzi.

35. **Auscultation Findings with Heart-Block.**—Clarac and Pezzi regard as most important the appearance now and then of a reenforced explosive first sound whenever it happens that the auricle and ventricle contract together; that is, when the systole of the auricle coincides with the first part of the contraction of the ventricle. This occasional explosive first sound always testifies to total heart-block if the ventricle beat is regular. Other significant auscultation findings are a systolic murmur at the mitral and tricuspid orifices, and also faint, dull, brief auricle sounds during the diastole, heard as the patient holds his breath.

Semaine Médicale, Paris

August 5, XXXIV, No. 31, pp. 361-372

36 *Serodiagnosis of Syphilis by the Coagulo-Reaction. L. Hirschfeld and R. Klinger.

36. **Serodiagnosis of Syphilis by the Coagulo-Reaction.**—Hirschfeld and Klinger call attention to an inhibition of coagulation which seems to be specific to syphilitic serum alone. Coagulation is the result of precipitation of the fibrinogen in the plasma by the thrombin. The thrombin itself is the product of the interaction of a serozyme (an albuminoid), a cytozyme (a lipoid), and a calcium ion. The organ extracts used for the Wassermann test represent an active cytozyme and this property is not affected by normal serum; coagulation occurs with them whether normal serum is added to them or not. But addition of syphilitic serum arrests all coagulation. This is the principle of the new test, the inhibition of coagulation in oxalated beef blood-plasma when syphilitic serum has been added to the organ extract previously diluted with rabbit or other serum and a 1 per cent. solution of calcium in physiologic salt solution. The findings with this coagulation test in 750 cases parallcled those of the Wassermann test except that the coagulo-reaction seemed perhaps a little more sensitive.

Beiträge zur klinischen Chirurgie, Tübingen

June, XCII, pp. 1-866. Eppendorf Hospital Festschrift

37 Surgical Pavilion of Hamburg-Eppendorf Hospital. H. Kümmell.
38 *General Anesthesia for Patients Who Dread the Operation Extremely. (Narkotisieren ängstlicher Menschen.) Scholz.
39 Intravenous General Ether Anesthesia. H. Kümmell.
40 *Postoperative Tetany. Wiebrecht.
41 Therapeutic Puncture of the Corpus Callosum. (Ueber den A. v. Bramann'schen Balkenstich.) Ringel.
42 *Operative Treatment of Epilepsy. Weispfenning.
43 Ankylosis of Jaw Causing Chin to Recede; Two Cases. (Kiefergelenksankylose mit "Vogelgesicht"-Bildung.) H. Hoffmann.
44 Pathologic Anatomy and Symptoms of Exophthalmic Goiter. (Morbus Basedowii.) P. Sudeck.
45 *Operation for Cancer of the Lower Esophagus. Hauch.
46 *Operation for Ruptured Aneurysm of the Aorta. H. Kümmell.
47 Gunshot Abdominal Wounds. (120 Bauchschussverletzungen aus dem Balkankrieg.) Wieting-Pascha.
48 *Infection of Gunshot Wounds. Kayser.
49 Diaphragmatic Eventration and Hernia. Hildebrand.
50 Pain in the Shoulder as Remote Phrenic-Nerve Symptom with Acute Surgical Abdominal Disease. Löffelmann.
51 *Operations on the Stomach. E. Roedelius.
52 Operative Treatment of Duodenal Ulcer; Sixty-Five Cases. H. Kümmell.
53 Acute Pancreatitis; Seventeen Cases. H. A. Dietrich.
54 *Disturbances after Cholecystectomy. (Warum bleiben nach Exstirpation der Gallenblase so häufig Beschwerden zurück?) Graff and A. Weinert.
55 *Gall-Stone Surgery. (Zur Gallensteinchirurgie.) J. Schulz.
56 Deformity of the Bile Ducts. (Abnormitäten der Gallenwege.) J. Oehler.
57 Operations on the Spleen; Seventeen Cases. (Zur Chirurgie der Milz.) H. Hoffmann.
58 Appendicitis in Eastern Asia. E. Birt.
59 Connection between Pericolitis and Chronic Inflammation of the Cecum. (Blinddarmentzündung.) Vorderbrügge.
60 Cancer of Large Intestine, Rectum excepted; Thirty-Nine Cases. (Zur Chirurgie der malignen Dickdarmgeschwülste.) A. Welter.
61 Improved Murphy Button. (Der Stachel-Murphyknopf: Zeitsparende Veränderung am Murphyknopf.) A. Flockmann.
62 *Operative Treatment of Tuberculosis of Abdominal Cavity; Eighty-One Cases. (Bauchhöhlentuberkulose.) P. Kayser.
63 Importance of Surgical Training for the Gynecologist. F. Engelmann.
64 Ruptured Tubal Pregnancy; One Hundred Cases, All with Recovery. (Geplatzte Tubargravidität. A. Wepfer.
65 Alexander-Adams Operation; One Hundred and Eighty-Two Cases. H. S. Pfeiffer.
66 Traumatic Rupture of Pregnant Uterus. Thoenes.
67 Case of Tardy Rachitis. O. Bickel.
68 *Tabetic Arthritis. (Zur Klinik, Unfallbegutachtung und Behandlung tabischer Gelenkerkrankungen.) F. Oehlecker.
69 Bone-Plastic Operation for Enchondroma of the Hand. F. Oehlecker.
70 End-Results of Bloodless Treatment of Intracapsular Fracture of the Neck of the Femur. (Intrakapsuläre Schenkelhalsfrakturen.) Pohrt.
71 Curable Muscular Deformity of the Forearm in the Newly Born. (Eine Supinations-Extensionsbehinderung der Vorderarme resp. Hände bei Neugeborenen.) J. G. Chrysospathes.
72 Treatment of Talipes Calcaneus. (Hackenfuss.) W. Böcker.
73 Dislocation-Fracture of Head of Humerus. Janz.
74 Dislocation-Fracture of the Talus. Goldammer.
75 Impalement Injuries; Five Cases. Bengsch.
76 *Diagnosis and Treatment of Cancer. (Krebsstudien.) A. Stammler.
77 *Digestion Leukocytosis in Differentiation of Gastric Ulcer and Cancer. F. Bonhoff.
78 Operations for Arthrodesis on Shoulder, Hip-Joint and Knee. H. Gocht.
79 *Roentgenotherapy at the Eppendorf Hospital. H. Gocht, Kotzenberg and H. Derks.
80 *Radiotherapy and Anion Therapy. P. Steffens.
81 Technic for Radiotherapy of Cancer of Throat and Esophagus. Albanus.

38. **General Anesthesia for the Badly Frightened.**—Scholz refers to patients whose dread of the operation is worse for them than the operation itself. The mere entering the hospital and the preparations frighten them. Whatever the cause, their fright may be so intense that the anesthetic actually fails of its effect at first. They may conceal their dread but it is generally revealed by some sign on the part of the vasomotor and visceral innervation, which is peculiarly unstable in patients of this category. They are inclined to tachycardia, false angina pectoris, polyuria, glycosuria, nervous diarrhea, transient numbness, angioneurotic edema, shallow, rapid breathing with occasional deep breaths, tremor, pallor and dryness of the mouth. Carbon dioxid seems to be a special product of extreme dread.

Scholz has been making a special study of the influence of the above factors on the action of general anesthetics. The blood-pressure in such patients suffered a constant and regular decline as the ether or chloroform was administered, until consciousness was entirely lost. The average drop in sixteen cases was 44 mm. mercury in fifteen minutes. In one case the decline was 69 mm. In such a condition of low blood-pressure the patient is exposed to various dangerous reflex processes, especially to reflex syncope from irritation by the anesthetic of the terminals of the trigeminus in the nose, the reflex action from this involving the vagus terminals in the heart and the respiration center in the medulla. Rosenberg has found that this reflex can be warded off by cocainizing the nose. The fatalities as general anesthesia is just commenced are undoubtedly due to this dangerous reflex, although they are usually ascribed to an "idiosyncrasy to the chloroform or ether." The action of the reflex is exaggerated further by the abnormally small amount of carbon dioxid supplied to the respiration center owing to the shallow and fluctuating breathing, as Henderson has explained.

Another important reflex is shown in the extreme dilatation of the pupil from the first moment of the anesthesia, and its persisting thus instead of gradually contracting under the influence of chloroform. This should be regarded under all circumstances as a sign of a menacing idiosyncrasy to chloroform. He has encountered two such cases this year; in one, under 3 gm. of chloroform and 25 gm. of ether given with extreme caution, the appendix was removed without mishap from the badly frightened boy of 12; the other patient, a much-excited man of 32, had a profound collapse. Scholz regards this symptom as the only one which points from the very first to impending danger. Another set of reflex symptoms are like those noticed in a person who has fainted from fright. They can be brought on by forcibly holding the patient, pressing down the inhal-

ing mask, or other procedure that frightens him. These symptoms occur mostly in young, half-grown patients whose hearts are especially liable to fail under sudden fluctuations in blood-pressure.

Still another set of reflexes may be elicited from the abdomen if the operation is commenced before all reflex action is abolished. In a very nervous woman of 32 the blood-pressure dropped from 152 to 87 in fifteen minutes. The chloroform was then dropped and ether given and the blood-pressure went up. Eight minutes later, in profound anesthesia with blood-pressure of 110 mm., the peritoneum was incised and the appendix drawn out. The blood-pressure dropped as this was done to 75, a minute later to 66, and then to 62 mm. The anesthetic was then discontinued and the pressure rose to 77 mm. and the appendix was removed without mishap. If the heart had been less able to stand the strain in this case, there might have been a fatality. The trouble was probably a sudden relaxation of the tonus of the vessels of the viscera superposed on the injury already inflicted on the heart by the toxic action of the anesthetic. This last set of symptoms includes the reflexes elicited by abrupt changes of position. Scholz gives a number of roentgenograms of anesthetized dogs first reclining and then suspended with the head down, showing the remarkable displacement of the diaphragm possible in these conditions, and the resulting obstruction to the pumping action of the heart. In his two most serious clinical cases of collapse from change of position under general anesthesia the patient was in a dentist's chair.

He expatiates further on the remarkably long persistence of the reflexes in extremely frightened patients. Even after the corneal reflex is abolished, the pulse fluctuates with every tug at the viscera, and the anesthesia has to be made deeper. This encroaches on the margin of safety, and extreme care is necessary to give the anesthetic as regularly as possible and not to allow any wavering between the arousing of the reflexes and syncope. After the reflexes are abolished there may be collapse from overdosage, but this is always ushered in by a disturbance in the breathing—any change from the tranquil deep breathing is a signal for stopping the anesthetic. When tranquil deep breathing is restored, the anesthetic can be resumed. The whole secret is to tranquillize the patient, avoid anything suggesting force, and refrain from beginning to operate too early. Persons with an exceptional dread of the operation are exposed to peculiar dangers at the first whiffs of the anesthetic.

40. **Tetany after Operations for Goiter.**—Wiebrecht urges to refrain from injuring the parathyroids in operating on the thyroid. If tetany develops, he advises the implanting of fresh human parathyroid gland tissue or administering horse or beef parathyroids by the mouth. If neither of the above is practicable, parathyroid tablets might be given, along with calcium lactate. Curschmann advocates giving 20 drops of a 10 per cent. solution three times a day, gradually increasing the dose until the patient is taking several teaspoonfuls daily.

42. **Operative Treatment of Epilepsy.**—Weispfenning reviews the experiences in this line in Kümmell's service, a total of 31 cases of epilepsy without known trauma, 11 of traumatic epilepsy, and 2 of the Jacksonian type. Of 26 true epileptics, 11 per cent. were cured and 10 per cent. materially improved. Transient improvement was noted in 4 of the 13 listed as unmodified by the operation. In 11 of them the epilepsy was of long standing—in 7 over nine years. In the 11 traumatic epilepsy cases only one patient was cured and one improved. One of these patients developed general epileptic seizures for the first time after a large defect in the skull had been closed with a celluloid plate. The intervals were at first only four weeks but have been growing much longer and the seizures much milder.

45. **Cancer of the Lower Esophagus.**—Hauch gives an illustrated description of eighteen cases of cancer in the middle and lower esophagus in which he succeeded in removing the growth. One patient succumbed to a recurrence a year after successful resection of the cancer in the lower esophagus and cardia. None of the other patients survived the operation or the following few days. The operative shock was evidently too great, possibly from the very efforts to shorten the operation.

46. **Operation for Ruptured Aneurysm of the Aorta.**—The man of 52 succumbed to heart weakness a few hours after Kümmell had sutured the aorta after cutting and remodeling the artery so that it approximated the normal size. The circulation was shut off for twelve minutes by compression with the fingers and was then gradually released. The suture held perfectly and the patient was in good condition after the hour operation. It was done under intravenous ether anesthesia, keeping the heart action good with saline and ether. The previous loss of blood, however, had reduced the patient's strength so that he succumbed to gradual heart failure. The operation was done from the rear, resecting ribs (four to ten) and pushing the unopened pleura out of the way. This affords ample access to the intrathoracic esophagus and aorta. The aneurysm in this case was above the diaphragm.

48. **Infection of Gunshot Wounds.**—Kayser declares that modern experiences and science have reconciled theory and practice and shown that immobilization is the most powerful means at our command to ward off and fight sepsis. Fixation, he reiterates, is the key to success; fixation of the bacteria in the vicinity of the wound, and fixation of the dressings; fixation of broken limbs by supporting dressings, and fixation of the patient to his bed so that he will be transported on the one litter from the battle-field to his home. Bacteria are always with us, and the organism is generally able to cope with them if left unmolested and perfectly quiet.

51. **Operations on the Stomach.**—Roedelius reviews 312 operative cases in the last three years for gastric ulcer, cancer or other affection; resection was done in 43 cases and excision in 3, in 33 merely an exploratory laparotomy. The outcome was excellent as a rule in all but the 130 cases of cancer. Of 38 treated by resection, 39.5 per cent. have been clinically cured to date. The Roentgen rays were systematically applied in a large number of cases of malignant disease and although no benefit was apparent in many of the advanced cases, yet the unmistakable favorable effect in a few instances justifies further work in this line.

54. **Why Patients Still Have Disturbances after Cholecystectomy.**—Graff and Weinert sent question-blanks to 130 patients whose gall-bladder had been removed, inquiring as to their present condition. They had 124 blanks returned and 87 of the patients stated that the operation had cured them once and for all, and 4 others said that they had had no disturbances since the first month. That is to say, 73.4 per cent. had been permanently cured by the operation. About 78 patients mentioned that their previous tendency to constipation had been cured by the operation; stomach disturbances as a rule also subsided permanently afterward. In four cases attacks of pain and jaundice indicated that gall-stones had been left behind, but two had only a brief single attack and have been well since. In ten cases at least, adhesions are evidently responsible for the disturbances and the technic should be planned to ward off production of adhesions. Subserous enucleation of the gall-bladder and roofing over the bed of the gall-bladder with peritoneum aid in preventing the development of adhesions, as also restricting tamponing to the minimum. If adhesions have already formed, the wounds left when they are broken up will give cause for still more adhesions to develop—another reason for operating early.

55. **Gall-Stones.**—Schulz regards the interference with the free circulation of bile during pregnancy as the chief cause for the development of gall-stones later. Not only mechanical, but chemical and other factors, aid in the process, including passive hyperemia, exaggerated destruction of red corpuscles and the toxic effect of fetal excrementitious matters. Among the 584 women in his 654 gall-stone operative cases in the last three years only twelve had not borne children among the 572 who were married. A tendency to

obesity was noticeable in a large number. Gall-stone trouble does not develop, however, as a rule until the influence of infection and trauma is superposed on the damage done by the pregnancy. In 145 cases the first attack of gall-stone colic occurred during a pregnancy, in forty-eight during the puerperium. This is in the proportion of 66 per cent. of his 385 operative cases in the last five years. Whether trauma alone could bring on cholelithiasis is still a question. In several of his cases there was a history of contusion of the upper abdomen. Most of his patients were between 28 and 48 but two were girls of 3 and 5. In one a stone weighing 3 gm. was found in the neck of the gall-bladder, which was much irritated, the walls thickened, with bleeding erosions and tubercle bacilli at various points. She was given iron, iodin and cod-liver oil systematically for the first three of the five years after the gall-bladder was removed, and seems to be in perfect health. The symptoms in the other child indicated acute septic cholecystitis and the gall-bladder was removed. Staphylococci were found in the bile but no concrements were discovered. A small abscess was found in the liver at the operation. The child has since been well and strong with no further abdominal symptoms.

In one of Schulz' cases the gall-stone was 10 by 3 cm. and weighed 72 gm. It had been palpated and mistaken for a cancer in the stomach. In another case he found a double gall-bladder, and in another no gall-bladder at all. The common bile duct was much dilated in this case. Reexamination of 145 patients whose gall-bladders he had removed showed all entirely free from disturbances, while 10 in 25 cholecystostomy cases complained of more or less persisting trouble. In 59 another operation had to be done and concrements were found in 14; suture threads were evidently responsible for the recurrence of gall-stones in 7.

62. **Tuberculosis in Abdominal Cavity.**—Kayser states that 48 (59.3 per cent.) are still living of the 81 patients given operative treatment and 29 have been cured for more than four or five years and an additional 10 for nearly as long. The others were not improved by the operation or have been lost track of. The tuberculous process was in the peritoneum or intestine in all but 2 mesenteric-gland and 10 uterine-adnexa cases. The 81 cases are described in detail; 40 of the patients had fever when the operation was contemplated and 50 per cent. of these are among the permanently cured. This experience is in sharp contrast to most of the literature on the subject.

In 26 cases there was a tuberculous process in the lungs and 10 among the permanently cured patients had complicating lung disease, and yet they recovered after operative treatment of the abdominal focus. He did not remove the uterus in operating on tuberculous tubes or ovaries, trusting that the uterus would return to normal after removal of the focus above; 7 were permanently cured in his 10 cases of this kind. He emphasizes the importance of measures after the operation to stimulate peristalsis and induce hyperemia, allowing the patient to leave the bed early, and supplementing operative treatment with a course of sanatorium treatment. He explains the benefit from operative treatment as the result of removing the effusion which has been mechanically hindering the circulation in the region besides exerting a toxic action. The benefit from getting rid of this is enhanced by the hyperemia which follows the irritation from the operation. It acts like an acute aseptic inflammation and in turn exerts a powerful antibacterial action. Infiltration occurs in the tubercles and they become destroyed, and shriveling connective tissue forms around and over them.

68. **Tabetic Arthritis.**—Oehlecker remarks that the arms are the seat of the neuropathic joint affection in syringomyelia while the legs are affected more often in tabes. The lack of pain in the tabetic joint affection is its most striking feature. No other joint process, not even a mild tuberculous or deforming arthritis, not even a syphilitic process, is so free from pain and other disturbance as arthritis of neuropathic origin. The neuropathic arthritis very rarely is recognized as such by the general practitioner; it sails along for years under the flag of rheumatism, tuberculosis, a sprain, or the like until other symptoms reveal the underlying tabes. As the patients feel so little disturbance from their joint trouble, no one pays much attention to it, while in fact the severest destructive processes are going on in the bones. There is seldom pain until pressure or suppuration involves the skin over the joint. The absence of pain in an arthritis should suggest possible tabes in every case.

Another characteristic of the neuropathic arthritis is the abnormal movability of the joint, especially hip and knee. A sudden swelling of the joint is usually from a complicating sprain or dislocation. The bones in and around the joint may feel grotesquely thickened and the whole aspect suggests something different from ordinary joint trouble. The pupil reflex is generally lost by this time and the tendon reflexes are modified, but the tabes has not reached the stage of ataxia, although the patients may have lancinating pains in the legs. A spontaneous fracture may be the first manifestation of the disease; the Wassermann reaction in the serum and spinal fluid is an aid in differentiation. He gives an illustrated description in detail of eleven cases and emphasizes the necessity for putting an end completely to all functional use of the joint, excluding it from use by appropriate orthopedic apparatus or casts, and starting a vigorous course of antisyphilis treatment. He has never witnessed any influence from the latter on the neuropathic arthritis, but it is indispensable to strive to arrest the tabes. When an operation is necessary, he resects the knee or amputates the foot and reports eleven cases in which he obtained solid healing of the bone, and says that this should be the aim. The neuropathic arthritis does not seem particularly predisposed to infection unless a fistula is already installed. He insists that the joint capsule and the synovia must be entirely removed when an operation is attempted, and the bones should be shaped in such a way that they will not slide on each other. The after-care is even more important than the operation itself, giving the bones the stimulus to repair from weight bearing. In many cases a solid Pirogoff stump is better than to have recurring trouble in the foot, but orthopedic treatment is the main reliance in nearly all cases.

76. **Cancer Research.**—Stammler reports trials with various drugs in treatment of cancer, all giving disappointing results. He found that none of the biologic tests can be relied on implicitly.

77. **Digestion Leukocytosis Differentiates Gastric Ulcer and Cancer.**—Bonhoff states that in his 14 cases of cancer and in 77 cases of cancer in the literature there was no digestion leukocytosis in 90 per cent. of the total 91 cases. When a leukocytosis did occur during digestion, the increase was only 1,100 and 1,400. On the other hand, a positive leukocytosis was observed during digestion in all but 3 of the 15 cases of gastric ulcer examined. The increase was usually about 2,000, but it sometimes ran up to 5,000. These findings confirm the value of digestion leukocytosis in differentiating cancer from an ulcer in the stomach, although the test is not infallible.

79. **Roentgenotherapy of Cancer.**—Kotzenberg calls attention to the more intensive action of the Roentgen rays the more blood there is in the region being exposed. This is one reason for the elective action of the rays, he says, as malignant tumors usually contain exceptional quantities of blood. He describes the technic in use at the Eppendorf hospital and his experience with 53 cases of cancer of the breast (including 3 men). In 31 cases a series of exposures was made after amputation of the breast but the results were not encouraging; recurrence has followed in 54 per cent. of the 22 whose later history is known. Five of the 13 patients with inoperable uterine cancer were clinically cured by the roentgenotherapy alone, one for three years to date. The outcome is not known in 2 other cases. Among the 20 cases of uterine cancer recently reexamined, 10 of the patients were found materially improved and 2 clinically cured. All the patients spoke of the relief of pain after the Roentgen exposures; life was rendered bearable and lengthened by two or three years in many cases. The exact details

of the total material are tabulated. The histologic structure of the tumor does not seem to influence the results. The experiences with prophylactic after-exposures were so discouraging that it seems as if they actually brought on recurrence.

80. **Radiotherapy and Anion Treatment.**—Steffens ascribes great therapeutic efficacy to the beta rays. He was led to this conclusion by studying the effect of climatic conditions, such as the reason why a rheumatic joint feels twinges when damp weather is impending, even before it has arrived. This may be owing to free ions in the atmosphere, which affect the sensitive joint. He has worked out from this a method of treatment based on the assumption (the reasons for which he explains in detail), that certain rheumatic, gouty and nervous disturbances become aggravated when the number of negative ions in the air falls below a certain limit. A radio-active bath supplies the negative ions and enables them to penetrate into the body in the form of beta rays. These rays can be generated artificially and applied in different ways, and he claims to have obtained fine results from them. Among his various tests he relates that fresh, virulent, pure cultures of typhoid bacilli are killed by the anion radiation while the culture medium is not modified by it. The affections amenable to anion treatment are those due to sluggish elimination of waste or disturbance in the vasomotor system. Increased amounts of uric acid are thrown off in the urine under its influence.

Monatsschrift für Kinderheilkunde, Leipzig

July, XIII, No. 3, pp. 113-164

82 Diphtheria Bacilli Carriers. G. van't Hoff.
83 Treatment of Pylorospasm in Infants. J. Peiser.
84 Metabolism with Osteogenesis Imperfecta; Especially Calcium Metabolism. (Stoffwechsel bei Osteogenesis imperfecta mit bes. Berücksichtigung des Kalkumsatzes.) A. Bookman.
85 *Dissemination of Scarlet Fever by Fomites. R. Weigert.
86 An Unusual Case of Meningocele Complicating Whooping-Cough. R. Weigert.
87 Alcoholic Extract of Vegetables as a Treatment for Scurvy. (Zur Frage des Barlow-Schutzstoffes.) E. Freudenberg.
88 Growth and Development of Full-Term, Under-Weight Infants. (Wachstum und Entwicklung untergewichtiger ausgetragener Neugeborener.) H. Opitz.

85. **Mode of Transmission of Scarlet Fever.**—Recently the tendency has been to attribute the greatest danger in the spread of scarlet fever to the nasal and buccal secretions of the patient or of persons who come in contact with him during sickness or convalescence. Weigert describes two cases which show that there is greater danger of infection from inanimate objects, such as clothing and toys, and that these should be thoroughly disinfected always. In one of his cases the infection took place eight years after the original case of scarlet fever.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 30, XXXV, No. 91, pp. 953-960

89 *Tincture of Iodin for Sterilization of Hands. (La disinfezione delle mani dell' operatore col metodo Grossich.) P. Costantini.

89. **Iodin in Sterilization of the Hands.**—Costantini applies a 30 per cent. alcoholic solution of iodid to his hands, swabbing them with cotton, or rinses his hands freely in a 3 per cent. solution and has found this amply sufficient for all purposes. In one emergency he had to reduce a prolapsed uterus with purulent cervicitis and rectocele and then proceed at once to a laparotomy for operative correction of the prolapse. It was all done without gloves, and his trust in the iodin sterilization of his hands was amply justified by the healing by primary intention. As also in a case in which just after resecting an epithelioma on the scalp, he had to clear out the woman's uterus from the relics of a twin abortion.

Riforma Medica, Naples

July 25, XXX, No. 30, pp. 813-840

90 *Stretching the Sciatic Nerve in Treatment of Sciatica. (Cura della sciatica, mediante lo stiramento cruento del nervo sciatico.) G. Nannini.
91 Chronic Hemorrhagic Inflammation of the Prepatellar Bursa. (Studio della borsite emorragica cronica prepatellare pseudoncoplastica.) G. Campora.

90. **Treatment of Sciatica by Stretching Sciatic Nerve.**—Nannini reports the cure by this means in six cases of chronic sciatica which had long resisted all other measures. The cure was prompt and permanent and he marvels that practitioners in general do not resort oftener to this comparatively simple procedure instead of letting their patients' sufferings drag on for months and years. The nerve must be reached by pushing the muscles out of the way, through an incision in the rear of the root of the thigh, just below the edge of the buttocks. The nerve must be freed from adhesions and isolated over a certain stretch and then the peripheral and the central ends pulled in turn, gently and continuously, without sudden jerks liable to injure the nerve. The traction should be applied under general anesthesia and in such a way that the mechanical effect can be felt the entire length of the nerve. The effect is enhanced by having the limb flexed and then stretched to the utmost by an assistant as the traction is being applied several times. There are vague pains at first for a few days and then paresthesia in the lower leg, possibly a sensation as if the leg were gone; then all symptoms fade away and by the tenth or twelfth day the patient can get up and begin to use his leg. One patient had sciatica on both sides and the nerve was found fastened with numerous stout adhesions. The second leg was treated six months after the first; this patient was a woman of 45 and the sciatica was of three years' standing.

Rivista Ospedaliera, Rome

July 15, IV, No. 13, pp. 609-651

92 Modern Treatment of Acute Peritonitis. A. Cimoroni.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 25, LVIII, No. 17, pp. 1347-1430

93 *Action of Lactagogs. G. J. Huet.
94 Anthropology of the Inhabitants of Niassa. J. P. K. de Zwaan.
95 The Financial Burden of Workmen's Compensation. (Het lastenpercentage der ongevallenwet.) J. A. Korteweg.

May 2, No. 18, pp. 1431-1510

96 Indications for Tonsillotomy or Tonsillectomy. H. Burger.
97 *Case of Alkaptonuria. M. W. Scheltema.
98 *Cancer in the Netherlands. C. A. V. Stuart. Commenced in No. 18.

May 9, No. 19, pp. 1511-1598

99 Coxa Vara. B. Brand.

May 16, No. 20, pp. 1599-1686

100 Diabetes Mellitus; Cause and Treatment. C. von Noorden.
101 *Recurrence of Gall-Stones after Cholecystectomy. (Herhaling van galsteenlijden na operatie.) H. J. Lameris.
102 *Inheritance of Color-Blindness. (Erfelijkheid van kleurenblindheid.) P. J. Waardenburg.

May 23, No. 21, pp. 1757-1844

103 *Infants Suffering from Deficient Nourishment. (Uitgehongerde zuigelingen.) C. de Lange.
104 *Treatment of Paraphimosis. D. van Capellen.
105 Modern Belief in "Miracles." (Hedendaagsch Mirakelgeloof.) G. van Rijnberk. Commenced in No. 18.

93. **Action of Lactagogs.**—Huet tested on four healthy women some widely advertised lactagogs, and states that no influence from their use was apparent either on the quantity or composition of the milk secreted.

97. **Alkaptonuria.**—Scheltema's patient was a thin little girl of 6. The aspect of the urine was normal when voided but it turned dark brown on exposure to light and left brown spots on the linen. This was noticed soon after birth, and further that the stains appeared especially pronounced about the third day after cow's milk had been given for a day. The child was rather pale but otherwise apparently normal, with no tendency to discoloration of the ears or sclera (ochronosis), but the cerumen was almost black and responded positively to the iodate reaction, which he commends highly for this purpose. The child's urine contained a number of brown tube-casts and calcium-oxalate crystals but no cystin, leucin or tyrosin crystals. On boiling the urine or cerumen with a few crystals of potassium iodate the fluid turns red, showing the presence of alkapton. He knows of only four cases on record in which the alkaptonuria proved transient. In all the others the alkaptonuria persisted unmodified by any measures.

98. **Cancer in the Netherlands.**—Stuart states that the mortality from cancer in the Netherlands has increased

from 0.5 to 1.1 per 1,000 inhabitants since 1875. During this period the number of cases of malignant disease under the age of 20 has increased by 315 per cent.; between 20 and 50, by 246 per cent.; between 65 and 80, by 446.1 per cent.; and over 80, by 890.2 per cent. The proportion of cancer deaths to the total mortality has increased under the age of 20 from 0.43 to 2.05 per cent.; between 20 and 50, from about 24 to 77; between 50 and 65 from 82 to 216; between 65 and 80, from 38.12 to 147.40 and for over 80 from 11.02 to 51.55 per cent. The total increase in the proportion of cancer deaths to the mortality at large has been from 21.49 per cent. in 1875 to 81.37 per cent. in 1912. One fact stands out in his tables, namely, that the increase in cancer at all ages, except between 20 and 50, has been greater among men than among women. The increase in men between 20 and 50 has been from 2.09 to 3.4 per cent.; in women, from 3.13 to 4.26 per cent. for each 10,000 inhabitants.

101. **Recurrence of Gall-Stones after Operations.**—Lameris' case was apparently an instance of recurrence, as the woman's gall-bladder had been removed two years before and the bile duct carefully searched. The structure of the gall-stone found at the second operation, however, disproved the idea of recurrence, as the structure in the center unmistakably indicated that it was a calculus overlooked at the first operation, which had gradually enlarged by incrustation to its present size. The patient was a woman of 43 who had borne ten children.

102. **Inheritance of Color-Blindness.**—Waardenburg has noticed that the sex plays a part in the inheritance of color-blindness as it may be transmitted through normal daughters to grandsons. He urges physicians to investigate conditions in regard to heredity among the color-blind; whether the taint dies out, and whether when a woman is color-blind there was a familial tendency in both parents, also the different forms which the color-blindness may assume in different members of the family. He says that the first cases of color-blindness on record were in three brothers (Huddart, 1777), while the other children were normal. It is estimated that about 3 per cent. of all men are color-blind but only 0.25 per cent. in women.

103. **Starving Infants.**—De Lange refers to infants kept on rice water or barley water—possibly by a physician's orders—for some transient illness but which the mothers in their mistaken zeal continued long after the necessity for it had passed. The child is actually starving to death on this inadequate nourishment. De Lange has encountered twenty-four cases of the kind in the last two years, and she tabulates them in instructive fashion to show the present status; the exact causes; the measures applied, and the recovery under them; only four succumbed. De Lange remarks that she had never supposed there was any call in the Netherlands for an organization like the British Society for the Prevention of Cruelty to Children but since she has found two dozen infants thus starving to death, usually from blundering solicitude, she thinks there is certainly a call for reform. They resembled in appearance infants with relative acidosis from loss of water and salts—the condition which the Germans call "decomposition"—but the starved babies were not so apathetic and their livid tint was not so pronounced. Great caution is necessary at first in giving nourishment to an actually starving infant. Buttermilk renders good service here.

104. **Treatment of Paraphimosis.**—Van Cappellen injects into the edematous internal layer of the prepuce a weak solution of an anesthetic containing a little epinephrin. Under the influence of this the swelling subsides and the retraction of the foreskin can be readily overcome. He has applied this procedure in several cases and with constant satisfaction. The operation for the phimosis can then be done at leisure.

Semana Medica, Buenos Aires

May 7, XXI, No. 19, pp. 1005-1064

106 Filterable Viruses. R. Kraus.
107 *Toxic Neuroretinitis and Iridocyclitis under Salvarsan; Seven Cases. R. Argañaraz.
108 Vaccine Therapy of Typhoid. (Vacuna tifica Dessy.) F. L. Grapiolo.
109 *Gelatine Tampon after Operations on the Nose. (Hemostasia nasal post-operatoria.) A. Ferreyra.
110 Symptomatology of Circulatory Apparatus. A. Viton.
111 Position of the Bed in relation to the Magnetic Meridian, Rotation of Earth, etc. (Orientacion de nuestro lecho.) S. V. de Castro.
112 *To Render Finger Prints Visible. (Nuevos reactivos para la revelacion de huellas digitales invisibles.) Maestre and Lecha-Marzo.

107. **Toxic Neuroretinitis and Iridocyclitis.**—Argañaraz reported in 1912 six cases of severe optic neuritis following on the use of salvarsan; two were encountered in his own practice and the others were clients of other local physicians. He now reports a similar group of a severe toxic affection following the use of salvarsan or neosalvarsan, four in his own practice and three from the experience of other local physicians—the disturbances affecting the uveal tract and the sensory apparatus of the eye in these cases. The symptoms observed suggest a toxic action from the drug. In the cases in which the salvarsan was continued after they had developed—assuming that they were the work of spirochetes that had escaped the action of the salvarsan—the symptoms grew progressively worse as the drug was continued. One patient became blind and another suffered such intense pains that he pleaded to have his eye enucleated. The iridocyclochoroiditis became progressively worse with hemorrhages and secondary glaucoma, entailing the destruction of the eye. This fate also confronts another patient and no benefit has been derived from vigorous mercurial treatment. This young man had been given systematic mercurial treatment at the time he contracted syphilis, in 1912, and then was given two intravenous injections of salvarsan with an eight-day interval. Twelve days later his right eye developed iritis and he was given a systematic course of mercurial treatment, with iodid, but the serous iridocyclitis continued to progress, the iris became atrophied and adherent and vision from 1/4 had dropped to mere perception of outlines at about 7 inches. The further course in this case is not known.

In one of the group previously reported the syphilis was of fourteen years' standing, and had been kept under control with mercury. Then a single injection of salvarsan was given and bilateral optic neuritis developed at once, entailing almost total blindness. In conclusion Argañaraz cites from the literature various cases of amblyopia consequent on arsenical medication before salvarsan was discovered. The assumption that the eye affection in his cases would not have developed if the dosage had been adequate is disproved by two of the cases related in which the doses had been large and pushed after the first signs of trouble, the patient receiving six intravenous injections of neosalvarsan in four months, each of 0.9 gm. This is the patient, a man of 44, who begged to have the eye removed on account of the persisting pains; corneal sclerotomy was done twice and gave considerable relief.

109. **Gelatine Tampon after Operations on the Nose.**—Ferreyra injects about 10 gm. of a 10 per cent. gelatinized serum into the nose after an operation, having found that it spreads and rapidly hardens, forming an ideal tampon to arrest and prevent all hemorrhage. It leaves a passage open, while it is free from the danger of secondary hemorrhage later, such as is always to be feared when an ordinary tampon is removed.

112. **To Render Finger Prints Visible.**—More than twenty-one different methods for this purpose have been devised, but Maestre and Lecha-Marzo call attention to the superior value of zinc oxid to show up a finger print on a black background. For prints on paper, glass, etc., they recommend a mixture of iodin and eosin, heated until it vaporizes. The violet vapor then applied to the finger print brings out the lines very distinctly and permanently enough for the purpose. On paper, platinum black is even better. It has revealed finger prints not detectable by any other means in several criminal cases in their experience. Before anything is applied, the supposed finger print is photographed under oblique illumination.